SEQUENCE LISTING

```
        <110> Brunkow, Mary E.
              Galas, David J.
              Kovacevich, Brian
              Mulligan, John T.
              Paeper, Bryan W.
              Van Ness, Jeffrey
              Winkler, David G.


        <120> COMPOSITIONS AND METHODS FOR INCREASING
              BONE MINERALIZATION


        <130> 240083.508


        <140> US
        <141> 1999-11-24


        <160> 41


        <170> FastSEQ for Windows Version 3.0


        <210> 1
        <211> 2301
        <212> DNA
        <213> Homo sapien


        <400> 1
        agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac    60
        tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg   120
        ggtggcaggc gttcaagaat gatgccacgg aaatcatccc cgagctcgga gagtaccccg   180
        agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc   240
        ctccccacca cccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact   300
        tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt   360
        gctccggcca gtgcggcccg cgcgcctgc tgcccaacgc catcggccgc ggcaagtggt   420
        ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc   480
        agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt   540
        gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg   600
        aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca   660
        accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc   720
        gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat   780
        atttcattgt aaatgcctgc aacccagggc aggggctga gaccttccag gccctgagga   840
        atcccgggcg ccggcaaggc cccctcagc ccgccagctg aggggtccca cggggcaggg   900
        gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct   960
        ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta  1020
        agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc  1080
        cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg  1140
        caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac  1200
        tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa  1260
        taggatctcg aggagactat ggcatatga ttccaaggac tccagtgcct tttgaatggg  1320
        cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc  1380
        caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa  1440
        caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac  1500
```

```
tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac   1560
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt   1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg   1680
acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg   1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga   1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc   1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt   1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tcttttttgaa  1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt   2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc   2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat   2160
atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt   2220
aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag   2280
acaatgaatc atgaccgaaa g                                             2301
```

<210> 2
<211> 213
<212> PRT
<213> Homo sapien

<400> 2

```
Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1               5                   10                  15
Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20                  25                  30
Ala Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
            35                  40                  45
Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
        50                  55                  60
Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65                  70                  75                  80
Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
                85                  90                  95
Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
            100                 105                 110
Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
        115                 120                 125
Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
    130                 135                 140
Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
145                 150                 155                 160
Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                165                 170                 175
Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
            180                 185                 190
Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
        195                 200                 205
Leu Glu Asn Ala Tyr
    210
```

<210> 3
<211> 2301
<212> DNA
<213> Homo sapien

```
<400> 3
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac      60
tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggctagg     120
ggtggcaggc gttcaagaat gatgccacgg aaatcatccc cgagctcgga gagtaccccg     180
agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc     240
ctccccacca cccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact     300
tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt     360
gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt     420
ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc     480
agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt     540
gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg     600
aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca     660
accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc     720
gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat.    780
atttcattgt aaatgcctgc aacccagggc agggggctga gaccttccag gccctgagga     840
atcccgggcg ccggcaaggc ccccctcagc ccgccagctg aggggtccca cggggcaggg     900
gaggggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct     960
ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta    1020
agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc    1080
cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg    1140
caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac    1200
tacacaattc tccttcggga cctcaatttc cactttgtaa atgagggtg  gaggtgggaa    1260
taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg    1320
cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc    1380
caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa    1440
caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac    1500
tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac    1560
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt    1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg.    1680
acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg    1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga     1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc    1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt    1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tcttttttgaa   1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt    2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc    2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat    2160
atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt    2220
aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag    2280
acaatgaatc atgaccgaaa g                                              2301

<210> 4
<211> 23
<212> PRT
<213> Homo sapien

<400> 4
Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1               5                   10                  15
Ala Phe Arg Val Val Glu Gly
            20

<210> 5
<211> 2301
<212> DNA
```

<213> Homo sapien

<400> 5

```
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac    60
tggccctgtg tctcatctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg   120
ggtggcaggc gttcaagaat gatgccacgg aaatcatccg cgagctcgga gagtaccccg   180
agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc   240
ctccccacca ccccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact   300
tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt   360
gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt   420
ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc   480
agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt   540
gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg   600
aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca   660
accaggccga gctggagaac gcctactaga gcccgccgc gccctcccc accggcgggc    720
gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat   780
atttcattgt aaatgcctgc aacccagggc aggggctga gaccttccag gccctgagga    840
atcccgggcg ccggcaaggc cccctcagc ccgccagctg aggggtccca cggggcaggg    900
gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct   960
ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta  1020
agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc  1080
cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg  1140
caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac  1200
tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa  1260
taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg  1320
cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc  1380
caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa  1440
caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac  1500
tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac  1560
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt  1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctccccg   1680
acccatagcc atgtttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg  1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga  1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc  1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttggggaaa aactacaagt   1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tcttttgaa   1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaagt   2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc  2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat  2160
atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt  2220
aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag  2280
acaatgaatc atgaccgaaa g                                            2301
```

<210> 6
<211> 213
<212> PRT
<213> Homo sapien

<400> 6

```
Met Gln Leu Pro Leu Ala Leu Cys Leu Ile Cys Leu Leu Val His Thr
1               5                   10                  15
Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20                  25                  30
Ala Thr Glu Ile Ile Arg Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
        35                  40                  45
```

```
          Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
              50                  55                  60
          Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
              65                  70                  75                  80
   5      Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
                          85                  90                  95
          Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
                  100                 105                 110
          Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
   10         115                 120                 125
          Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
              130                 135                 140
          Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
              145                 150                 155                 160
   15     Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                          165                 170                 175
          Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
                  180                 185                 190
          Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
   20         195                 200                 205
          Leu Glu Asn Ala Tyr
              210


          <210> 7
   25     <211> 2301
          <212> DNA
          <213> Homo sapien


          <400> 7
   30     agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac      60
          tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg     120
          ggtggcaggc gttcaagaat gatgccacgg aaatcatccg cgagctcgga gagtaccccg     180
          agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc     240
          ctccccacca cccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact     300
   35     tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt     360
          gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt     420
          ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc     480
          agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt     540
          gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg     600
   40     aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca     660
          accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc     720
          gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat     780
          atttcattgt aaatgcctgc aacccagggc aggggctga gaccttccag gccctgagga     840
          atcccgggcg ccggcaaggc cccctcagc ccgccagctg aggggtccca cggggcaggg     900
   45     gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct     960
          ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta    1020
          agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc    1080
          cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg    1140
          caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac    1200
   50     tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa    1260
          taggatctcg aggagactat tggcatatga ttccaggac tccagtgcct tttgaatggg    1320
          cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc    1380
          caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa    1440
          caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac    1500
   55     tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac    1560
```

```
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt    1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg    1680
acccatagcc atgtttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg    1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga    1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc    1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt    1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tctttttgaa    1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt    2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc    2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat    2160
atttatttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt     2220
aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag    2280
acaatgaatc atgaccgaaa g                                               2301
```

```
        <210> 8
        <211> 213
        <212> PRT
        <213> Homo sapien

        <400> 8
Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1               5                   10                  15
Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20                  25                  30
Ala Thr Glu Ile Ile Arg Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
        35                  40                  45
Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
    50                  55                  60
Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65                  70                  75                  80
Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
            85                  90                  95
Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
        100                 105                 110
Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
        115                 120                 125
Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
    130                 135                 140
Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
145                 150                 155                 160
Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
            165                 170                 175
Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
            180                 185                 190
Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
        195                 200                 205
Leu Glu Asn Ala Tyr
    210

        <210> 9
        <211> 642
        <212> DNA
        <213> Cercopithecus pygerythrus

        <400> 9
```

```
atgcagctcc cactggccct gtgtcttgtc tgcctgctgg tacacgcagc cttccgtgta    60
gtggagggcc aggggtggca ggccttcaag aatgatgcca cggaaatcat ccccgagctc   120
ggagagtacc ccgagcctcc accggagctg gagaacaaca agaccatgaa ccgggcggag   180
aatggagggc ggcctcccca ccaccccttt gagaccaaag acgtgtccga gtacagctgc   240
cgagagctgc acttcacccg ctacgtgacc gatgggccgt gccgcagcgc caagccagtc   300
accgagttgg tgtgctccgg ccagtgcggc ccggcacgcc tgctgcccaa cgccatcggc   360
cgcggcaagt ggtggcgccc gagtgggccc gacttccgct gcatccccga ccgctaccgc   420
gcgcagcgtg tgcagctgct gtgtcccggt ggtgccgcgc cgcgcgcgcg caaggtgcgc   480
ctggtggcct cgtgcaagtg caagcgcctc acccgcttcc acaaccagtc ggagctcaag   540
gacttcggtc ccgaggccgc tcggccgcag aagggccgga agccgcggcc ccgcgcccgg   600
ggggccaaag ccaatcaggc cgagctggag aacgcctact ag                      642
```

<210> 10
<211> 213
<212> PRT
<213> Cercopithecus pygerythrus

<400> 10

```
Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Ala
1               5                  10                  15
Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
            20                  25                  30
Ala Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
            35                  40                  45
Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
        50                  55                  60
Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65                  70                  75                  80
Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
                85                  90                  95
Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
            100                 105                 110
Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
            115                 120                 125
Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
        130                 135                 140
Gln Leu Leu Cys Pro Gly Gly Ala Ala Pro Arg Ala Arg Lys Val Arg
145                 150                 155                 160
Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                165                 170                 175
Ser Glu Leu Lys Asp Phe Gly Pro Glu Ala Ala Arg Pro Gln Lys Gly
            180                 185                 190
Arg Lys Pro Arg Pro Arg Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu
        195                 200                 205
Leu Glu Asn Ala Tyr
210
```

<210> 11
<211> 638
<212> DNA
<213> Mus musculus

<400> 11

```
atgcagccct cactagcccc gtgcctcatc tgcctacttg tgcacgctgc cttctgtgct    60
gtggagggcc aggggtggca agccttcagg aatgatgcca cagaggtcat cccagggctt   120
```

```
ggagagtacc ccgagcctcc tcctgagaac aaccagacca tgaaccgggc ggagaatgga      180
ggcagacctc cccaccatcc ctatgacgcc aaaggtgtgt ccgagtacag ctgccgcgag      240
ctgcactaca cccgcttcct gacagacggc ccatgccgca gcgccaagcc ggtcaccgag      300
ttggtgtgct ccggccagtg cggccccgcg cggctgctgc caacgccat cgggcgcgtg       360
aagtggtggc gcccgaacgg accggatttc cgctgcatcc cggatcgcta ccgcgcgcag      420
cgggtgcagc tgctgtgccc cggggggcgcg cgccgcgct cgcgcaaggt gcgtctggtg       480
gcctcgtgca agtgcaagcg cctcacccgc ttccacaacc agtcggagct caaggacttc      540
gggccggaga ccgcgcggcc gcagaagggt cgcaagccgc ggcccggcgc ccggggagcc      600
aaagccaacc aggcggagct ggagaacgcc tactagag                              638
```

<210> 12
<211> 211
<212> PRT
<213> Mus musculus

<400> 12

```
Met Gln Pro Ser Leu Ala Pro Cys Leu Ile Cys Leu Leu Val His Ala
1             5                  10                 15
Ala Phe Cys Ala Val Glu Gly Gln Gly Trp Gln Ala Phe Arg Asn Asp
              20                 25                 30
Ala Thr Glu Val Ile Pro Gly Leu Gly Glu Tyr Pro Glu Pro Pro Pro
          35                 40                 45
Glu Asn Asn Gln Thr Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro
          50                 55                 60
His His Pro Tyr Asp Ala Lys Asp Val Ser Glu Tyr Ser Cys Arg Glu
65                 70                 75                 80
Leu His Tyr Thr Arg Phe Leu Thr Asp Gly Pro Cys Arg Ser Ala Lys
              85                 90                 95
Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala Arg Leu
          100                105                110
Leu Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn Gly Pro
          115                120                125
Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu
          130                135                140
Leu Cys Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg Leu Val
145                150                155                160
Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu
                   165                170                175
Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly Arg Lys
              180                185                190
Pro Arg Pro Gly Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu Leu Glu
          195                200                205
Asn Ala Tyr
210
```

<210> 13
<211> 674
<212> DNA
<213> Rattus norvegicus

<400> 13

```
gaggaccgag tgcccttcct ccttctggca ccatgcagct ctcactagcc ccttgccttg      60
cctgcctgct tgtacatgca gccttcgttg ctgtggagag ccaggggtgg caagccttca     120
agaatgatgc cacagaaatc atcccgggac tcagagagta cccagagcct cctcaggaac     180
tagagaacaa ccagaccatg aaccgggccg agaacggagg cagacccccc caccatcctt     240
```

```
            atgacaccaa agacgtgtcc gagtacagct gccgcgagct gcactacacc cgcttcgtga    300
            ccgacggccc gtgccgcagt gccaagccgg tcaccgagtt ggtgtgctcg ggccagtgcg    360
            gccccgcgcg gctgctgccc aacgccatcg ggcgcgtgaa gtggtggcgc ccgaacggac    420
            ccgacttccg ctgcatcccg gatcgctacc gcgcgcagcg ggtgcagctg ctgtgccccg    480
      5     gcggcgcggc gccgcgctcg cgcaaggtgc gtctggtggc ctcgtgcaag tgcaagcgcc    540
            tcacccgctt ccacaaccag tcggagctca aggacttcgg acctgagacc gcgcggccgc    600
            agaagggtcg caagccgcgg ccccgcgccc ggggagccaa agccaaccag gcggagctgg    660
            agaacgccta ctag                                                      674


     10          <210> 14
                 <211> 213
                 <212> PRT
                 <213> Rattus norvegicus


     15          <400> 14
            Met Gln Leu Ser Leu Ala Pro Cys Leu Ala Cys Leu Leu Val His Ala
            1               5                  10                  15
            Ala Phe Val Ala Val Glu Ser Gln Gly Trp Gln Ala Phe Lys Asn Asp
                        20                  25                  30
     20     Ala Thr Glu Ile Ile Pro Gly Leu Arg Glu Tyr Pro Glu Pro Pro Gln
                    35                  40                  45
            Glu Leu Glu Asn Asn Gln Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
                    50                  55                  60
            Pro Pro His His Pro Tyr Asp Thr Lys Asp Val Ser Glu Tyr Ser Cys
     25     65                  70                  75                  80
            Arg Glu Leu His Tyr Thr Arg Phe Val Thr Asp Gly Pro Cys Arg Ser
                            85                  90                  95
            Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
                        100                 105                 110
     30     Arg Leu Leu Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn
                        115                 120                 125
            Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
                    130                 135                 140
            Gln Leu Leu Cys Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg
     35     145                 150                 155                 160
            Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                            165                 170                 175
            Ser Glu Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly
                        180                 185                 190
     40     Arg Lys Pro Arg Pro Arg Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu
                        195                 200                 205
            Leu Glu Asn Ala Tyr
            210


     45          <210> 15
                 <211> 532
                 <212> DNA
                 <213> Bos torus


     50          <400> 15
            agaatgatgc cacagaaatc atccccgagc tgggcgagta ccccgagcct ctgccagagc    60
            tgaacaacaa gaccatgaac cgggcggaga cggagggag acctccccac caccccttttg    120
            agaccaaaga cgcctccgag tacagctgcc gggagctgca cttcacccgc tacgtgaccg    180
            atgggccgtg ccgcagcgcc aagccggtca ccgagctggt gtgctcgggc cagtgcggcc    240
     55     cggcgcgcct gctgcccaac gccatcggcc gcggcaagtg gtggcgccca agcgggcccg    300
```

```
acttccgctg catccccgac cgctaccgcg cgcagcgggt gcagctgttg tgtcctggcg      360
gcgcggcgcc gcgcgcgcgc aaggtgcgcc tggtggcctc gtgcaagtgc aagcgcctca      420
ctcgcttcca caaccagtcc gagctcaagg acttcgggcc cgaggccgcg cggccgcaaa      480
cgggccggaa gctgcggccc cgcgcccggg gcaccaaagc cagccgggcc ga             532
```

```
<210> 16
<211> 176
<212> PRT
<213> Bos torus
```

```
<400> 16
```

Asn	Asp	Ala	Thr	Glu	Ile	Ile	Pro	Glu	Leu	Gly	Glu	Tyr	Pro	Glu	Pro
1				5					10					15	
Leu	Pro	Glu	Leu	Asn	Asn	Lys	Thr	Met	Asn	Arg	Ala	Glu	Asn	Gly	Gly
			20					25					30		
Arg	Pro	Pro	His	His	Pro	Phe	Glu	Thr	Lys	Asp	Ala	Ser	Glu	Tyr	Ser
		35					40					45			
Cys	Arg	Glu	Leu	His	Phe	Thr	Arg	Tyr	Val	Thr	Asp	Gly	Pro	Cys	Arg
	50					55					60				
Ser	Ala	Lys	Pro	Val	Thr	Glu	Leu	Val	Cys	Ser	Gly	Gln	Cys	Gly	Pro
65					70					75					80
Ala	Arg	Leu	Leu	Pro	Asn	Ala	Ile	Gly	Arg	Gly	Lys	Trp	Trp	Arg	Pro
				85					90					95	
Ser	Gly	Pro	Asp	Phe	Arg	Cys	Ile	Pro	Asp	Arg	Tyr	Arg	Ala	Gln	Arg
			100					105					110		
Val	Gln	Leu	Leu	Cys	Pro	Gly	Gly	Ala	Ala	Pro	Arg	Ala	Arg	Lys	Val
		115					120					125			
Arg	Leu	Val	Ala	Ser	Cys	Lys	Cys	Lys	Arg	Leu	Thr	Arg	Phe	His	Asn
	130					135					140				
Gln	Ser	Glu	Leu	Lys	Asp	Phe	Gly	Pro	Glu	Ala	Ala	Arg	Pro	Gln	Thr
145					150					155					160
Gly	Arg	Lys	Leu	Arg	Pro	Arg	Ala	Arg	Gly	Thr	Lys	Ala	Ser	Arg	Ala
			165					170					175		

```
<210> 17
<211> 35828
<212> DNA
<213> Mus musculus
```

```
<220>
<221> misc_feature
<222> (1)...(35828)
<223> n = A,T,C or G
```

```
<400> 17
cgcgtttttgg tgagcagcaa tattgcgctt cgatgagcct tggcgttgag attgatacct       60
ctgctgcaca aaaggcaatc gaccgagctg gaccagcgca ttcgtgacac cgtctccttc      120
gaacttattc gcaatggagt gtcattcatc aaggacngcc tgatcgcaaa tggtgctatc      180
cacgcagcgg caatcgaaaa ccctcagccg gtgaccaata tctacaacat cagccttggt      240
atcctgcgtg atgagccagc gcagaacaag gtaaccgtca gtgccgataa gttcaaagtt      300
aaacctggtg ttgataccaa cattgaaacg ttgatcgaaa acgcgctgaa aaacgctgct      360
gaatgtgcgg cgctggatgt cacaaagcaa atggcagcag acaagaaagc gatggatgaa      420
ctggcttcct atgtccgcac ggccatcatg atggaatgtt tccccggtgg tgttatctgg      480
cagcagtgcc gtcgatagta tgcaattgat aattattatc atttgcgggt cctttccggc      540
gatccgcctt gttacggggc ggcgacctcg cgggtttttcg ctatttatga aaattttccg      600
```

```
        gtttaaggcg tttccgttct tcttcgtcat aacttaatgt ttttatttaa aataccctct    660
        gaaaagaaag gaaacgacag gtgctgaaag cgagcttttt ggcctctgtc gtttcctttc    720
        tctgtttttg tccgtggaat gaacaatgga agtcaacaaa aagcagagct tatcgatgat    780
        aagcggtcaa acatgagaat tcgcggccgc ataatacgac tcactatagg gatcgacgcc    840
   5    tactccccgc gcatgaagcg gaggagctgg actccgcatg cccagagacg ccccccaacc    900
        cccaaagtgc ctgacctcag cctctaccag ctctggcttg ggcttgggcg gggtcaaggc    960
        taccacgttc tcttaacagg tggctgggct gtctcttggc cgcgcgtcat gtgacagctg   1020
        cctagttctg cagtgaggtc accgtggaat gtctgccttc gttgccatgg caacgggatg   1080
        acgttacaat ctgggtgtgg agcttttcct gtccgtgtca ggaaatccaa ataccctaaa   1140
   10   ataccctaga agaggaagta gctgagccaa ggctttcctg gcttctccag ataaagtttg   1200
        acttagatgg aaaaaaacaa aatgataaag acccgagcca tctgaaaatt cctcctaatt   1260
        gcaccactag gaaatgtgta tattattgag ctcgtatgtg ttcttatttt aaaaagaaaa   1320
        ctttagtcat gttattaata agaatttctc agcagtggga gagaaccaat attaacacca   1380
        agataaaagt tggcatgatc cacattgcag gaagatccac gttgggtttt catgaatgtg   1440
   15   aagaccccat ttattaaagt cctaagctct gttttgcac actaggaagc gatggccggg    1500
        atggctgagg ggctgtaagg atctttcaat gtcttacatg tgtgtttcct gtcctgcacc   1560
        taggacctgc tgcctagcct gcagcagagc cagaggggtt tcacatgatt agtctcagac   1620
        acttgggggc aggttgcatg tactgcatcg cttatttcca tacggagcac ctactatgtg   1680
        tcaaacacca tatggtgttc actcttcaga acggtggtgg tcatcatggt gcatttgctg   1740
   20   acggttggat tggtggtaga gagctgagat atatggacgc actcttcagc attctgtcaa   1800
        cgtggctgtg cattcttgct cctgagcaag tggctaaaca gactcacagg gtcagcctcc   1860
        agctcagtcg ctgcatagtc ttagggaacc tctcccagtc ctccctacct caactatcca   1920
        agaagccagg gggcttggcg gtctcaggag cctgcttgct gggggacagg ttgttgagtt   1980
        ttatctgcag taggttgcct aggcatagtg tcaggactga tggctgcctt ggagaacaca   2040
   25   tcctttgccc tctatgcaaa tctgaccttg acatgggggc gctgctcagc tgggaggatc   2100
        aactgcatac ctaaagccaa gcctaaagct tcttcgtcca cctgaaactc ctggaccaag   2160
        gggcttccgg cacatcctct caggccagtg agggagtctg tgtgagctgc actttccaat   2220
        ctcagggcgt gagaggcaga gggaggtggg ggcagagcct tgcagctctt tcctcccatc   2280
        tggacagcgc tctggctcag cagcccatat gagcacaggc acatccccac cccacccca   2340
   30   cctttcctgt cctgcagaat ttaggctctg ttcacggggg ggggggggg ggggcagtcc   2400
        tatcctctct taggtagaca ggactctgca ggagacactg ctttgtaaga tactgcagtt   2460
        taaatttgga tgttgtgagg ggaaagcgaa gggcctcttt gaccattcag tcaaggtacc   2520
        ttctaactcc catcgtattg gggggctact ctagtgctag acattgcaga gagcctcaga   2580
        actgtagtta ccagtgtggt aggattgatc cttcagggag cctgacatgt gacagttcca   2640
   35   ttcttcaccc agtcaccgaa catttattca gtacctaccc cgtaacaggc accgtagcag   2700
        gtactgaggg acggaccact caaagaactg acagaccgaa gccttggaat ataaacacca   2760
        aagcatcagg ctctgccaac agaacactct ttaacactca ggccctttaa cactcaggac   2820
        ccccaccccc accccaagca gttggcactg ctatccacat tttacagaga ggaaaaacta   2880
        ggcacaggac gatataagtg gcttgcttaa gcttgtctgc atggtaaatg gcagggctgg   2940
   40   attgagaccc agacattcca actctagggt ctattttct tttttctcgt tgttcgaatc   3000
        tgggtcttac tgggtaaact caggctagcc tcacactcat atccttctcc catggcttac   3060
        gagtgctagg attccaggtg tgtgctacca tgtctgactc cctgtagctt gtctatacca   3120
        tcctcacaac ataggaattg tgatagcagc acacacaccg gaaggagctg gggaaatccc   3180
        acagagggct ccgcaggatg acaggcgaat gcctacacag aaggtgggga agggaagcag   3240
   45   agggaacagc atgggcgtgg gaccacaagt ctatttgggg aagctgccgg taaccgtata   3300
        tggctggggt gaggggagag gtcatgagat gaggcaggaa gagccacagc aggcagcggg   3360
        tacgggctcc ttattgccaa gaggctcgga tcttcctcct cttcctcctt ccggggctgc   3420
        ctgttcattt tccaccactg cctcccatcc aggtctgtgg ctcaggacat cacccagctg   3480
        cagaaactgg gcatcaccca cgtcctgaat gctgccgagg caggtccttc atgcacgtc   3540
   50   aacaccagtg ctagcttcta cgaggattct ggcatcacct acttgggcat caaggccaat   3600
        gatacgcagg agttcaacct cagtgcttac tttgaaaggg ccacagattt cattgaccag   3660
        gcgctggccc ataaaaatgg taaggaacgt acattccggc acccatggag cgtaagccct   3720
        ctgggacctg cttcctccaa agaggccccc acttgaaaaa ggttccagaa agatcccaaa   3780
        atatgccacc aactagggat taagtgtcct acatgtgagc cgatggggc cactgcatat   3840
   55   agtctgtgcc atagacatga caatggataa taatatttca gacagagagc aggagttagg   3900
```

```
     tagctgtgct cctttccctt taattgagtg tgcccatttt tttattcatg tatgtgtata   3960
     catgtgtgtg cacacatgcc ataggttgat actgaacacc gtcttcaatc gttccccacc   4020
     ccaccttatt ttttgaggca gggtctcttc cctgatcctg gggctcattg gtttatctag   4080
     gctgctggcc agtgagctct ggagttctgc ttttctctac ctccctagcc ctgggactgc   4140
  5  aggggcatgt gctgggccag gcttttatgt cgcgttgggg atctgaactt aggtccctag   4200
     gcctgagcac cgtaaagact ctgccacatc cccagcctgt ttgagcaagt gaaccattcc   4260
     ccagaattcc cccagtgggg ctttcctacc cttttattgg ctaggcattc atgagtggtc   4320
     acctcgccag aggaatgagt ggccacgact ggctcagggt cagcagccta gagatactgg   4380
     gttaagtctt cctgccgctc gctccctgca gccgcagaca gaaagtagga ctgaatgaga   4440
 10  gctggctagt ggtcagacag gacagaaggc tgagagggtc acagggcaga tgtcagcaga   4500
     gcagacaggt tctccctctg tgggggaggg gtggcccact gcaggtgtaa ttggccttct   4560
     ttgtgctcca tagaggcttc ctgggtacac agcagcttcc ctgtcctggt gattcccaaa   4620
     gagaactccc taccactgga cttacagaag ttctattgac tggtgtaacg gttcaacagc   4680
     tttggctctt ggtggacggt gcatactgct gtatcagctc aagagctcat tcacgaatga   4740
 15  acacacacac acacacacac acacacacac acacaagcta attttgatat gccttaacta   4800
     gctcagtgac tgggcatttc tgaacatccc tgaagttagc acacatttcc ctctggtgtt   4860
     cctggcttaa caccttctaa atctatattt tatctttgct gccctgttac cttctgagaa   4920
     gccctagggg ccacttccct tcgcacctac attgctggat ggtttctctc ctgcagctct   4980
     taaatctgat ccctctgcct ctgagccatg ggaacagccc aataactgag ttagacataa   5040
 20  aaacgtctct agccaaaact tcagctaaat ttagacaata aatcttactg gttgtggaat   5100
     ccttaagatt cttcatgacc tccttcacat ggcacgagta tgaagcttta ttacaattgt   5160
     ttattgatca aactaactca taaaaagcca gttgtctttc acctgctcaa ggaaggaaca   5220
     aaattcatcc ttaactgatc tgtgcacctt gcacaatcca tacgaatatc ttaagagtac   5280
     taagattttg gttgtgagag tcacatgtta cagaatgtac agctttgaca aggtgcatcc   5340
 25  ttgggatgcc gaagtgacct gctgttccag ccccctacct tctgaggctg ttttggaagc   5400
     aatgctctgg aagcaacttt aggaggtagg atgctggaac agcgggtcac ttcagcatcc   5460
     cgatgacgaa tcccgtcaaa gctgtacatt ctgtaacaga ctgggaaagc tgcagacttt   5520
     aaggccaggg ccctatggtc cctcttaatc cctgtcacac ccaacccgag cccttctcct   5580
     ccagccgttc tgtgcttctc actctggata gatggagaac acggccttgc tagttaaagg   5640
 30  agtgaggctt cacccttctc acatggcagt ggttggtcat cctcattcag ggaactctgg   5700
     ggcattctgc ctttacttcc tcttttttgga ctacaggaa tatatgctga cttgttttga   5760
     ccttgtgtat ggggagactg gatctttggt ctggaatgtt tcctgctagt ttttccccat   5820
     cctttggcaa accctatcta tatcttacca ctaggcatag tggccctcgt tctggagcct   5880
     gccttcaggc tggttctcgg ggaccatgtc cctggtttct ccccagcata tggtgttcac   5940
 35  agtgttcact gcgggtggtt gctgaacaaa gcggggattg catcccagag ctccggtgcc   6000
     ttgtgggtac actgctaaga taaaatggat actggcctct ctctgaccac ttgcagagct   6060
     ctggtgcctt gtgggtacac tgctaagata aaatggatac tggcctctct ctatccactt   6120
     gcaggactct agggaacagg aatccattac tgagaaaacc aggggctagg agcagggagg   6180
     tagctgggca gctgaagtgc ttggcgacta accaatgaat accagagttt ggatctctag   6240
 40  aatactctta aaatctgggt gggcagagtg gcctgcctgt aatcccagaa ctcgggaggc   6300
     ggagacaggg aatcatcaga gcaaactggc taaccagaat agcaaaacac tgagctctgg   6360
     gctctgtgag agatcctgcc ttaacatata agagagagaa taaaacattg aagaagacag   6420
     tagatgccaa ttttaagccc ccacatgcac atggacaagt gtgcgtttga acacacatat   6480
     gcactcatgt gaaccaggca tgcacactcg ggcttatcac acacataatt tgaaagagag   6540
 45  agtgagagag gagagtgcac attagagttc acaggaaagt gtgagtgagc acacccatgc   6600
     acacagacat gtgtgccagg gagtaggaaa ggagcctggg tttgtgtata agagggagcc   6660
     atcatgtgtt tctaaggagg gcgtgtgaag gaggcgttgt gtgggctggg actggagcat   6720
     ggttgtaact gagcatgctc cctgtgggaa acaggagggt ggccaccctg cagagggtcc   6780
     cactgtccag cgggatcagt aaaagcccct gctgagaact ttaggtaata gccagagaga   6840
 50  gaaaggtagg aaagtggggg gactcccatc tctgatgtag gaggatctgg gcaagtagag   6900
     gtgcgtttga ggtagaaaga ggggtgcaga ggagatgctc ttaattctgg gtcagcagtt   6960
     tctttccaaa taatgcctgt gaggaggtgt aggtggtggc cattcactca ctcagcagag   7020
     ggatgatgat gcccggtgga tgctggaaat ggccgagcat caaccctggc tctggaagaa   7080
     ctccatcttt cagaaggaga gtggatctgt gtatggccag cggggtcaca ggtgcttggg   7140
 55  gcccctgggg gactcctagc actgggtgat gtttatcgag tgctcttgtg tgccaggcac   7200
```

```
        tggcctgggg cttgtttct gtctctgttt tgtttcgttt tttgagacag actcttgcta    7260
        tgtatccgtg tcaatcttgg aatctcactg catagcccag gctgcggaga gaggggaggg    7320
        caataggcct tgtaagcaag ccacacttca gagactagac tccaccctgc gaatgatgac    7380
        aggtcagagc tgagttccgg aagatttttt ttccagctgc caggtggagt gtggagtggc    7440
  5     agctagcggc aagggtagag ggcgagctcc ctgtgcagga gaaatgcaag caagagatgg    7500
        caagccagtg agttaagcat tctgtgtggg gagcaggtgg atgaagagag aggctgggct    7560
        ttcgcctctg ggggggcggt gaggggtggg gatgaggtga gaggagggca gctccctgca    7620
        gtgtgatgag atttttcctg acagtgacct ttggcctctc cctccccac ttcccttctt     7680
        tcctttcttc ccaccattgc tttccttgtc cttgagaaat tctgagtttc cacttcactg    7740
  10    gtgatgcaga cggaaacaga agccgtgtgt gtgtgtgtgt gtgtgtgt gtgtgtgt       7800
        gtgtgtgtgt ttgtgtgtat gtgtgtgtgt gtgtttgtgt gtatgtgtgt cagtgggaat    7860
        ggctcatagt ctgcaggaag gtgggcagga aggaataagc tgtaggctga ggcagtgtgg    7920
        gatgcaggga gagaggagag gagggatacc agagaaggaa attaagggag ctacaagagg    7980
        gcattgttgg ggtgtgtgtg tgtgtgtgtt gtttatattt gtattggaaa tacattcttt    8040
  15    taaaaaatac ttatccattt atttattttt atgtgcacgt gtgtgtgcct gcatgagttc    8100
        atgtgtgcca cgtgtgtgcg ggaacccttg gaggccacaa gggggcatct gatcccctgg    8160
        aactggagtt ggaggaggtt gtgagtcccc tgacatgttt gctgggaact gaaccccggt    8220
        cctatgcaag agcaggaagt gcagttatct gctgagccat ctctccagtc ctgaaatcca    8280
        ttctcttaaa atacacgtgg cagagacatg atgggattta cgtatggatt taatgtggcg    8340
  20    gtcattaagt tccggcacag gcaagcacct gtaaagccat caccacaacc gcaacagtga    8400
        atgtgaccat cacccccatg ttcttcatgt cccctgtccc ctccatcctc cattctcaag    8460
        cacctcttgc tctgcctctg tcgctggaga acagtgtgca tctgcacact cttatgtcag    8520
        tgaagtcaca cagcctgcac cccttcctgg tctgagtatt tgggttctga ctctgctatc    8580
        acacactact gtactgcatt ctctcgctct cttttttaa acatattttt atttgtttgt     8640
  25    gtgtatgcac atgtgccaca tgtgtacaga tactatggag gccagaagag gccatggccg    8700
        tccctggagc tggagttaca ggcagcgtgt gagctgcctg gtgtgggtgc tgggaaccaa    8760
        acttgaatct aaagcaagca ctttttaactg ctgaggcagc tctcagtacc cttcttcatt   8820
        tctccgcctg ggttccattg tatggacaca tgtagctaga atatcttgct tatctaatta    8880
        tgtacattgt tttgtgctaa gagagagtaa tgctctatag cctgagctgg cctcaacctt    8940
  30    gccatcctcc tgcctcagcc tcctcctcct gagtgctagg atgacaggcg agtggtaact    9000
        tacatggttt catgtttgt tcaagactga aggataacat tcatacagag aaggtctggg     9060
        tcacaaagtg tgcagttcac tgaatggcac aacccgtgat caagaaacaa aactcagggg    9120
        ctggagagat ggcactgact gctcttccag aggtccggag ttcaattccc agcaaccaca    9180
        tggtggctca cagccatcta taacgagatc tgacgccctc ttctggtgtg tctgaagaca    9240
  35    gctacagtgt actcacataa aataaataaa tctttaaaac acacacac acacaattac       9300
        caccccagaa agcccactcc atgttccctc ccacgtctct gcctacagta ctcccaggtt    9360
        accactgttc aggcttctaa caacctggtt tacttgggcc tcttttctgc tctgtggagc    9420
        cacacatttg tgtgcctcat acacgttctt tctagtaagt tgcatattac tctgcgtttt    9480
        tacatgtatt tatttattgt agttgtgtgt gcgtgtgggc ccatgcatgg cacagtgtgt    9540
  40    ggggatgtca gagtattgtg aacaggggac agttcttttc ttcaatcatg tgggttccag    9600
        aggttgaact caggtcatca tgtgtggcag caaatgcctt tacccactga gacatctcca    9660
        tattcttttt ttttcccctg aggtgggggc ttgttccata gcccaaactg gctttgcact    9720
        tgcagttcaa agtgactccc tgtctccacc tcttagagta ttggaattac gatgtgtact    9780
        accacacctg actggatcat taattctttg atggggcgg ggaagcgcac atgctgcagg     9840
  45    tgaagggatg actggactgg acatgagcgt ggaagccaga gaacagcttc agtctaatgc    9900
        tctcccaact gagctatttc ggtttgccag agaacaactt acagaaagtt ctcagtgcca    9960
        tgtggattcg gggttggagt tcaactcatc agcttgacat tggctcctct acccactgag   10020
        ccttctcact actctctacc tagatcatta attctttttt aaaaagactt attagggggc   10080
        tggagagatg gctcagccgt taagagcacc gaatgccctt ccagaggtcc tgagttcaat   10140
  50    tcccagcatg ccattgctgg gcagtagggg gcgcaggtgt tcaacgtgag tagctgttgc   10200
        cagttttccg cggtggagaa cctcttgaca ccctgctgtc cctggtcatt ctgggtgggt   10260
        gcatggtgat atgcttgttg tatggaagac tttgactgtt acagtgaagt tgggcttcca   10320
        cagttaccac gtctcccctg tttcttgcag gccgggtgct tgtccattgc cgcgagggct   10380
        acagccgctc cccaacgcta gttatcgcct acctcatgat gcggcagaag atggacgtca   10440
  55    agtctgctct gagtactgtg aggcagaatc gtgagatcgg ccccaacgat ggcttcctgg   10500
```

```
       cccaactctg ccagctcaat gacagactag ccaaggaggg caaggtgaaa ctctagggtg   10560
       cccacagcct cttttgcaga ggtctgactg ggagggccct ggcagccatg tttaggaaac   10620
       acagtatacc cactccctgc accaccagac acgtgcccac atctgtccca ctctggtcct   10680
       cgggggccac tccaccctta gggagcacat gaagaagctc cctaagaagt tctgctcctt   10740
   5   agccatcctt tcctgtaatt tatgtctctc cctgaggtga ggttcaggtt tatgtccctg   10800
       tctgtggcat agatacatct cagtgaccca gggtgggagg gctatcaggg tgcatggccc   10860
       gggacacggg cactcttcat gacccctccc ccacctgggt tcttcctgtg tggtccagaa   10920
       ccacgagcct ggtaaaggaa ctatgcaaac acaggccctg acctccccat gtctgttcct   10980
       ggtcctcaca gcccgacacg ccctgctgag gcagacgaat gacattaagt tctgaagcag   11040
  10   agtggagata gattagtgac tagatttcca aaaagaagga aaaaaaaggc tgcattttaa   11100
       aattatttcc ttagaattaa agatactaca taggggccct tgggtaagca aatccatttt   11160
       tcccagaggc tatcttgatt ctttggaatg tttaaagtgt gccttgccag agagcttacg   11220
       atctatatct gctgcttcag agccttccct gaggatggct ctgttccttt gcttgttaga   11280
       agagcgatgc cttgggcagg gtttccccct tttcagaata cagggtgtaa agtccagcct   11340
  15   attacaaaca aacaaacaaa caaacaaaca aaggacctcc atttggagaa ttgcaaggat   11400
       tttatcctga attatagtgt tggtgagttc aagtcatcac gccaagtgct tgccatcctg   11460
       gttgctattc taagaataat taggaggagg aacctagcca attgcagctc atgtccgtgg   11520
       gtgtgtgcac gggtgcatat gttggaaggg gtgcctgtcc ccttggggac agaaggaaaa   11580
       tgaaaggccc ctctgctcac cctggccatt tacgggaggc tctgctggtt ccacggtgtc   11640
  20   tgtgcaggat cctgaaactg actcgctgga cagaaacgag acttggcggc accatgagaa   11700
       tggagagaga gagagcaaag aaagaaacag cctttaaaag aactttctaa gggtggtttt   11760
       tgaacctcgc tggaccttgt atgtgtgcac atttgccaga gattgaacat aatcctcttg   11820
       ggacttcacg ttctcattat ttgtatgtct ccggggtcac gcagagccgt cagccaccac   11880
       cccagcaccc ggcacatagg cgtctcataa aagcccattt tatgagaacc agagctgttt   11940
  25   gagtaccccg tgtatagaga gagttgttgt cgtggggcac ccggatccca gcagcctggt   12000
       tgcctgcctg taggatgtct tacaggagtt tgcagagaaa ccttccttgg agggaaagaa   12060
       atatcaggga ttttgttga atatttcaaa ttcagcttta agtgtaagac tcagcagtgt   12120
       tcatggttaa ggtaaggaac atgcctttc cagagctgct gcaagaggca ggagaagcag   12180
       acctgtctta ggatgtcact cccagggtaa agacctctga tcacagcagg agcagagctg   12240
  30   tgcagcctgg atggtcattg tcccctattc tgtgtgacca cagcaaccct ggtcacatag   12300
       ggctggtcat cctttttttt tttttttttt tttttttttg cccagaatg aagtgaccat   12360
       agccaagttg tgtacctcag tctttagttt ccaagcggct ctcttgctca atacaatgtg   12420
       catttcaaaa taacactgta gagttgacag aactggttca tgtgttatga gagaggaaaa   12480
       gagaggaaag aacaaaacaa aacaaaacac cacaaaccaa aaacatctgg gctagccagg   12540
  35   catgattgca atgtctacag gcccagttca tgagaggcag agacaggaag accgccgaaa   12600
       ggtcaaggat agcatggtct acgtatcgag actccagcca gggctacggt cccaagatcc   12660
       taggttttgg attttgggct ttggtttttg agacaggggtt tctctgtgta gccctggctg   12720
       tcctggaact cgctctgtag accaggctgg cctcaaactt agagatctgc ctgactctgc   12780
       ctttgagggc tgggacgaat gccaccactg cccaactaag attccattaa aaaaaaaaa   12840
  40   agttcaagat aattaagagt tgccagctcg ttaaagctaa gtagaagcag tctcaggcct   12900
       gctgcttgag gctgttcttg gcttggacct gaaatctgcc cccaacagtg tccaagtgca   12960
       catgactttg agccatctcc agagaaggaa gtgaaaattg tggctcccca gtcgattggg   13020
       acacagtctc tctttgtcta ggtaacacat ggtgacacat agcattgaac tctccactct   13080
       gagggtgggt ttccctcccc ctgcctcttc tgggttggtc accccatagg acagccacag   13140
  45   gacagtcact agcacctact ggaaacctct ttgtgggaac atgaagaaag agcctttggg   13200
       agattcctgg ctttccatta gggctgaaag tacaacggtt cttggttggc tttgcctcgt   13260
       gtttataaaa ctagctacta ttcttcaggt aaaataccga tgttgtggaa aagccaaccc   13320
       cgtggctgcc cgtgagtagg gggtggggtt gggaatcctg gatagtgttc tatccatgga   13380
       aagtggtgga ataggaatta agggtgttcc cccccccccc aacctcttcc tcagacccag   13440
  50   ccactttcta tgacttataa acatccaggt aaaaattaca aacataaaaa tggtttctct   13500
       tctcaatctt ctaaagtctg cctgcctttt ccaggggtag gtctgtttct ttgctgttct   13560
       attgtcttga gagcacagac taacacttac caaatgaggg aactcttggc ccatactaag   13620
       gctcttctgg gctccagcac tcttaagtta tttttaagaat tctcacttgg cctttagcac   13680
       acccgccacc cccaagtggg tgtggataat gccatggcca gcagggggca ctgttgaggc   13740
  55   gggtgccttt ccaccttaag ttgcttatag tatttaagat gctaaatgtt ttaatcaaga   13800
```

```
     gaagcactga tcttataata cgaggataag agattttctc acaggaaatt gtcttttca    13860
     taattctttt acaggctttg tcctgatcgt agcatagaga gaatagctgg atatttaact    13920
     tgtattccat tttcctctgc cagcgttagg ttaactccgt aaaaagtgat tcagtggacc    13980
     gaagaggctc agagggcagg ggatggtggg gtgaggcaga gcactgtcac ctgccaggca    14040
  5  tgggaggtcc tgccatccgg gaggaaaagg aaagtttagc ctctagtcta ccaccagtgt    14100
     taacgcactc taaagttgta accaaaataa atgtcttaca ttacaaagac gtctgttttg    14160
     tgtttccttt tgtgtgtttg ggcttttat gtgtgcttta taactgctgt ggtggtgctg     14220
     ttgttagttt tgaggtagga tctcaggctg gccttgaact tctgatcgcc tgcccctgcc    14280
     cctgcccctg cccctgtccc tgcctccaag tgctaggact aaaagcacat gccaccacac    14340
 10  cagtacagca tttttctaac atttaaaaat aatcacctag gggctggaga gagggttcca    14400
     gctaagagtg cacactgctc ttgggtagga cctgagttta gttcccagaa cctatactgg    14460
     gtggctccag gtccagagga tccaggacct ctggcctcca tgggcatctg ctcttagcac    14520
     ataccacat acagatacac acataaaat aaaatgaagc ctttaaaaac ctcctaaaac      14580
     ctagcccttg gaggtacgac tctggaaagc tggcatactg tgtaagtcca tctcatggtg    14640
 15  ttctggctaa cgtaagactt acagagacag aaaagaactc agggtgtgct gggggttggg    14700
     atggaggaag agggatgagt aggggggagca cggggaactt gggcagtgaa aattctttgc    14760
     aggacactag aggaggataa ataccagtca ttgcacccac tactggacaa ctccagggaa    14820
     ttatgctggg tgaaaagaga aggcgccagg tattggctgc attggctgca tttgcgtaac    14880
     attttttaa attgaaaaga aaaagatgta aatcaaggtt agatgagtgg ttgctgtgag     14940
 20  ctgagagctg gggtgagtga gacatgtgga caactccatc aaaaagcgac agaaagaacg    15000
     ggctgtggtg acagctacct ctaatctcca cctccgggag gtgatcaagg ttagccctca    15060
     gctagcctgt ggtgcatgag accctgtttc aaaaacttta ataaagaaat aatgaaaaaa    15120
     gacatcaggg cagatccttg gggccaaagg cggacaggcg agtctcgtgg taaggtcgtg    15180
     tagaagcgga tgcatgagca cgtgccgcag gcatcatgag agagccctag gtaagtaagg    15240
 25  atggatgtga gtgtgtcggc gtcggcgcac tgcacgtcct ggctgtggtg ctggactggc    15300
     atctttggtg agctgtggag gggaaatggg tagggagatc ataaaatccc tccgaattat    15360
     ttcaagaact gtctattaca attatctcaa aatattaaaa aaaaagaaga attaaaaaac    15420
     aaaaaaccta tccaggtgtg gtggtgtgca cctatagcca cgggcacttg gaaagctgga    15480
     gcaagaggat ggcgagtttg aaggtatctg gggctgtaca gcaagaccgt cgtccccaaa    15540
 30  ccaaaccaaa cagcaaaccc attatgtcac acaagagtgt ttatagtgag cggcctcgct    15600
     gagagcatgg ggtggggggtg ggggtggggg acagaaatat ctaaactgca gtcaataggg    15660
     atccactgag accctggggc ttgactgcag cttaaccttg ggaaatgata agggtttttgt    15720
     gttgagtaaa agcatcgatt actgacttaa cctcaaatga agaaaaagaa aaaagaaaa     15780
     caacaaagc caaaccaagg ggctggtgag atggctcagt gggtaagagc acccgactgc     15840
 35  tcttccgaag gtccagagtt caaatcccag caaccacatg gtggctcaca accatctgta    15900
     acgagatatg atgccctctt ctggtgtgtc tgaagacagc tacagtgtac ttacatataa    15960
     taaataaatc ttaaaaaaaa aaaaaaaaa aaaagccaaa ccgagcaaac caggcccca     16020
     aacagaaggc aggcacgacg gcaggcacca cgagccatcc tgtgaaaagg cagggctacc    16080
     catgggccga ggagggtcca gagagatagg ctggtaagct cagtttctct gtataccctt    16140
 40  tttcttgttg acactacttc aattacagat aaaataacaa ataaacaaaa tctagagcct    16200
     ggccactctc tgctcgcttg attttttcctg ttacgtccag caggtggcgg aagtgttcca    16260
     aggacagatc gcatcattaa ggtggccagc ataatctccc atcagcaggt ggtgctgtga    16320
     gaaccattat ggtgctcaca gaatcccggg cccaggagct gccctctccc aagtctggag    16380
     caataggaaa gctttctggc ccagacaggg ttaacagtcc acattccaga gcagggaaa     16440
 45  aggagactgg aggtcacaga caaaaggggcc agcttctaac aacttcacag ctctggtagg    16500
     agagatagat cacccccaac aatggccaca gctggttttg tctgccccga aggaaactga    16560
     cttaggaagc aggtatcaga gtcccttcc tgaggggact tctgtctgcc ttgtaaagct     16620
     gtcagagcag ctgcattgat gtgtgggtga cagaagatga aaaggaggac ccaggcagat    16680
     cgccacagat ggaccggcca cttacaagtc gaggcaggtg gcagagcctt gcagaagctc    16740
 50  tgcaggtgga cgacactgat tcattaccca gttagcatac cacagcgggc taggcggacc    16800
     acagcctcct tcccagtctt cctccagggc tggggagtcc tccaaccttc tgtctcagtg    16860
     cagcttccgc cagcccctcc tccttttgca cctcaggtgt gaaccctccc tcctctcctt    16920
     ctccctgtgg catggccctc ctgctactgc aggctgagca ttggatttct ttgtgcttag    16980
     atagacctga gatggctttc tgatttatat atatatatcc atcccttgga tcttacatct    17040
 55  aggacccaga gctgtttgtg ataccataag aggctgggga gatgatatgg taagagtgct    17100
```

```
         tgctgtacaa gcatgaagac atgagttcga atccccagca accatgtgga aaaataacct   17160
         tctaacctca gagttgaggg gaaaggcagg tggattctgg gggcttactg gccagctagc   17220
         cagcctaacc taaatgtctc agtcagagat cctgtctcag ggaataactt gggagaatga   17280
         ctgagaaaga cacctcctca ggtctcccat gcacccacac agacacacgg gggggggta   17340
      5  atgtaataag ctaagaaata atgagggaaa tgattttttg ctaagaaatg aaattctgtg   17400
         ttggccgcaa gaagcctggc cagggaagga actgcctttg gcacaccagc ctataagtca   17460
         ccatgagttc cctggctaag aatcacatgt aatggagccc aggtccctct tgcctggtgg   17520
         ttgcctctcc cactggtttt gaagagaaat tcaagagaga tctccttggt cagaattgta   17580
         ggtgctgagc aatgtggagc tggggtcaat gggattcctt taaaggcatc cttcccaggg   17640
     10  ctgggtcata cttcaatagt agggtgcttg cacagcaagc gtgagaccct aggttagagt   17700
         ccccagaatc tgcccccaac cccccaaaaa ggcatccttc tgcctctggg tgggtggggg   17760
         gagcaaacac ctttaactaa gaccattagc tggcaggggt aacaaatgac cttggctaga   17820
         ggaatttggt caagctggat tccgccttct gtagaagccc cacttgtttc ctttgttaag   17880
         ctggcccaca gtttgttttg agaatgcctg aggggcccag ggagccagac aattaaaagc   17940
     15  caagctcatt ttgatatctg aaaaccacag cctgactgcc ctgcccgtgg gaggtactgg   18000
         gagagctggc tgtgtccctg cctcaccaac gccccccccc ccaacacaca ctcctcgggt   18060
         cacctgggag gtgccagcag caatttggaa gtttactgag cttgagaagt cttgggaggg   18120
         ctgacgctaa gcacacccct tctccacccc cccccacccc acccccgtga ggaggagggt   18180
         gaggaaacat gggaccagcc ctgctccagc ccgtccttat tggctggcat gaggcagagg   18240
     20  gggctttaaa aaggcaaccg tatctaggct ggacactgga gcctgtgcta ccgagtgccc   18300
         tcctccacct ggcagcatgc agccctcact agccccgtgc ctcatctgcc tacttgtgca   18360
         cgctgccttc tgtgctgtgg agggccaggg gtggcaagcc ttcaggaatg atgccacaga   18420
         ggtcatccca gggcttggag agtaccccga gcctcctcct gagaacaacc agaccatgaa   13480
         ccgggcggag aatggaggca gacctcccca ccatccctat gacgccaaag gtacgggatg   18540
     25  aagaagcaca ttagtggggg ggggggtcct gggaggtgac tggggtggtt ttagcatctt   18600
         cttcagaggt ttgtgtgggt ggctagcctc tgctacatca gggcagggac acatttgcct   18660
         ggaagaatac tagcacagca ttagaacctg gagggcagca ttgggggggct ggtagagagc   18720
         acccaaggca gggtggaggc tgaggtcagc cgaagctggc attaacacgg gcatgggctt   18780
         gtatgatggt ccagagaatc tcctcctaag gatgaggaca caggtcagat ctagctgctg   18840
     30  accagtgggg aagtgatatg gtgaggctgg atgccagatg ccatccatgg ctgtactata   18900
         tcccacatga ccaccacatg aggtaaagaa ggccccagct tgaagatgga gaaaccgaga   18960
         ggctcctgag ataaagtcac ctgggagtaa gaagagctga gactggaagc tggtttgatc   19020
         cagatgcaag gcaaccctag attgggtttg ggtgggaacc tgaagccagg aggaatccct   19080
         ttagttcccc cttgcccagg gtctgctcaa tgagcccaga gggttagcat taaaagaaca   19140
     35  gggtttgtag gtggcatgtg acatgagggg cagctgagtg aaatgtcccc tgtatgagca   19200
         caggtggcac cacttgccct gagcttgcac cctgacccca gctttgcctc attcctgagg   19260
         acagcagaaa ctgtggaggc agagccagca cagagagatg cctggggtgg gggtgggggt   19320
         atcacgcacg gaactagcag caatgaatgg ggtggggtgg cagctggagg gacactccag   19380
         agaaatgacc ttgctggtca ccatttgtgt gggaggagag ctcatttt cc agcttgccac   19440
     40  cacatgctgt ccctcctgtc tcctagccag taagggatgt ggaggaaagg gccaccccaa   19500
         aggagcatgc aatgcagtca cgttttgca gaggaagtgc ttgacctaag ggcactattc   19560
         ttggaaagcc ccaaaactag tccttccctg ggcaaacagg cctcccccac ataccacctc   19620
         tgcaggggtg agtaaattaa gccagccaca gaagggtggc aaggcctaca cctccccccct   19680
         gttgtgcccc ccccccccc gtgaaggtgc atcctggcct ctgcccctct ggctttggta   19740
     45  ctgggatttt ttttttcctt ttatgtcata ttgatcctga caccatggaa cttttggagg   19800
         tagacaggac ccacacatgg attagttaaa agcctcccat ccatctaagc tcatggtagg   19860
         agatagagca tgtccaagag aggagggcag gcatcagacc tagaagatat ggctgggcat   19920
         ccaacccaat ctccttcccc ggagaacaga ctctaagtca gatccagcca cccttgagta   19980
         accagctcaa ggtacacaga acaagagagt ctggtataca gcaggtgcta aacaaatgct   20040
     50  tgtggtagca aaagctatag gttttgggtc agaactccga cccaagtcgc gagtgaagag   20100
         cgaaaggccc tctactcgcc accgccccgc ccccacctgg ggtcctataa cagatcactt   20160
         tcaccccttgc gggagccaga gagccctggc atcctaggta gcccccccccg cccccccccc   20220
         gcaagcagcc cagccctgcc tttgggggcaa gttcttttct cagcctggac ctgtgataat   20280
         gagggggttg gacgcgccgc ctttggtcgc tttcaagtct aatgaattct tatccctacc   20340
     55  acctgccctt ctaccccgct cctccacagc agctgtcctg atttattacc ttcaattaac   20400
```

```
        ctccactcct ttctccatct cctgggatac cgcccctgtc ccagtggctg gtaaaggagc   20460
        ttaggaagga ccagagccag gtgtggctag aggctaccag gcagggctgg ggatgaggag   20520
        ctaaactgga agagtgtttg gttagtaggc acaaagcctt gggtgggatc cctagtaccg   20580
        gagaagtgga gatgggcgct gagaagttca agaccatcca tccttaacta cacagccagt   20640
    5   ttgaggccag cctgggctac ataaaaaccc aatctcaaaa gctgccaatt ctgattctgt   20700
        gccacgtagt gcccgatgta atagtggatg aagtcgttga atcctggggc aacctatttt   20760
        acagatgtgg ggaaaagcaa ctttaagtac cctgcccaca gatcacaaag aaagtaagtg   20820
        acagagctcc agtgtttcat ccctgggttc caaggacagg gagagagaag ccagggtggg   20880
        atctcactgc tccccggtgc ctccttccta taatccatac agattcgaaa gcgcagggca   20940
   10   ggtttggaaa aagagagaag ggtggaagga gcagaccagt ctggcctagg ctgcagcccc   21000
        tcacgcatcc ctctctccgc agatgtgtcc gagtacagct gccgcgagct gcactacacc   21060
        cgcttcctga cagacggccc atgccgcagc gccaagccgg tcaccgagtt ggtgtgctcc   21120
        ggccagtgcg gccccgcgcg gctgctgccc aacgccatcg ggcgcgtgaa gtggtggcgc   21180
        ccgaacggac cggatttccg ctgcatcccg gatcgctacc gcgcgcagcg ggtgcagctg   21240
   15   ctgtgccccg ggggcgcggc gccgcgctcg cgcaaggtgc gtctggtggc ctcgtgcaag   21300
        tgcaagcgcc tcacccgctt ccacaaccag tcggagctca aggacttcgg gccggagacc   21360
        gcgcggccgc agaagggtcg caagccgcgg cccggcgccc ggggagccaa agccaaccag   21420
        gcggagctgg agaacgccta ctagagcgag cccgcgccta tgcagccccc gcgcgatccg   21480
        attcgttttc agtgtaaagc ctgcagccca ggccaggggt gccaaacttt ccagaccgtg   21540
   20   tggagttccc agcccagtag agaccgcagg tccttctgcc cgctgcgggg gatggggagg   21600
        gggtgggggtt cccgcgggcc aggagaggaa gcttgagtcc cagactctgc ctagccccgg   21660
        gtgggatggg ggtctttcta ccctcgccgg acctatacag gacaaggcag tgtttccacc   21720
        ttaaagggaa gggagtgtgg aacgaaagac ctgggactgg ttatggacgt acagtaagat   21780
        ctactccttc cacccaaatg taaagcctgc gtgggctaga tagggtttct gaccctgacc   21840
   25   tggccactga gtgtgatgtt gggctacgtg gttctctttt ggtacggtct tctttgtaaa   21900
        atagggaccg gaactctgct gagattccaa ggattggggt accccgtgta gactggtgag   21960
        agagaggaga acaggggagg ggttagggga gagattgtgg tgggcaaccg cctagaagaa   22020
        gctgtttgtt ggctcccagc ctcgccgcct cagaggtttg gcttcccccca ctccttcctc   22080
        tcaaatctgc cttcaaatcc atatctggga tagggaaggc cagggtccga gagatggtgg   22140
   30   aagggccaga aatcacactc ctggcccccc gaagagcagt gtcccgcccc caactgcctt   22200
        gtcatattgt aaagggattt tctacacaac agtttaaggt cgttggagga aactgggctt   22260
        gccagtcacc tcccatcctt gtcccttgcc aggacaccac ctcctgcctg ccacccacgg   22320
        acacatttct gtctagaaac agagcgtcgt cgtgctgtcc tctgagacag catatcttac   22380
        attaaaaaga ataatacggg gggggggggc ggagggcgca agtgttatac atatgctgag   22440
   35   aagctgtcag gcgccacagc accacccaca atctttttgt aaatcatttc cagacacctc   22500
        ttactttctg tgtagatttt aattgttaaa aggggaggag agagagcgtt tgtaacagaa   22560
        gcacatggag ggggggggtag gggggttggg gctggtgagt ttggcgaact ttccatgtga   22620
        gactcatcca caaagactga aagccgcgtt ttttttttta agagttcagt gacatattta   22680
        ttttctcatt taagttattt atgccaacat ttttttcttg tagagaaagg cagtgttaat   22740
   40   atcgctttgt gaagcacaag tgtgtgtggt ttttgtttt ttgttttttc cccgaccaga   22800
        ggcattgtta ataaagacaa tgaatctcga gcaggaggct gtggtcttgt tttgtcaacc   22860
        acacacaatg tctcgccact gtcatctcac tcccttccct tggtcacaag acccaaacct   22920
        tgacaacacc tccgactgct ctctggtagc ccttgtggca atacgtgttt cctttgaaaa   22980
        gtcacattca tcctttcctt tgcaaacctg gctctcattc cccagctggg tcatcgtcat   23040
   45   accctcaccc cagcctccct ttagctgacc actctccaca ctgtcttcca aaagtgcacg   23100
        tttcaccgag ccagttccct ggtccaggtc atcccattgc tcctccttgc tccagaccct   23160
        tctcccacaa agatgttcat ctcccactcc atcaagcccc agtggccctg cggctatccc   23220
        tgtctcttca gttagctgaa tctacttgct gacaccacat gaattccttc ccctgtctta   23280
        aggttcatgg aactcttgcc tgcccctgaa ccttccagga ctgtcccagc gtctgatgtg   23340
   50   tcctctctct tgtaaagccc caccccacta tttgattccc aattctagat cttcccttgt   23400
        tcattccttc acgggatagt gtctcatctg gccaagtcct gcttgatatt gggataaatg   23460
        caaagccaag tacaattgag gaccagttca tcattgggcc aagcttttc aaaatgtgaa   23520
        ttttacacct atagaagtgt aaaagccttc caaagcagag gcaatgcctg gctcttcctt   23580
        caacatcagg gctcctgctt tatgggtctg gtggggtagt acattcataa acccaacact   23640
   55   aggggtgtga aagcaagatg attgggagtt cgaggccaat cttggctatg aggccctgtc   23700
```

```
        tcaacctctc ctccctccct ccagggtttt gttttgtttt gttttttttga tttgaaactg   23760
        caacacttta aatccagtca agtgcatctt tgcgtgaggg gaactctatc cctaatataa   23820
        gcttccatct tgatttgtgt atgtgcacac tgggggttga acctgggcct ttgtacctgc   23880
        cgggcaagct ctctactgct ctaaacccag ccctcactgg ctttctgttt caactcccaa   23940
  5     tgaattcccc taaatgaatt atcaatatca tgtctttgaa aaataccatt gagtgctgct   24000
        ggtgtccctg tggttccaga ttccaggaag gactttttcag ggaatccagg catcctgaag   24060
        aatgtcttag agcaggaggc catggagacc ttggccagcc ccacaaggca gtgtggtgca   24120
        gagggtgagg atggaggcag gcttgcaatt gaagctgaga cagggtactc aggattaaaa   24180
        agcttccccc aaaacaattc caagatcagt tcctggtact tgcacctgtt cagctatgca   24240
  10    gagcccagtg ggcataggtg aagacaccgg ttgtactgtc atgtactaac tgtgcttcag   24300
        agccggcaga gacaaataat gttatggtga ccccagggga cagtgattcc agaaggaaca   24360
        cagaagagag tgctgctaga ggctgcctga aggagaaggg gtcccagact ctctaagcaa   24420
        agactccact cacataaaga cacaggctga gcagagctgg ccgtggatgc agggagccca   24480
        tccaccatcc tttagcatgc ccttgtattc ccatcacatg ccagggatga ggggcatcag   24540
  15    agagtccaag tgatgcccaa acccaaacac acctaggact tgctttctgg gacagacaga   24600
        tgcaggagag actaggttgg gctgtgatcc cattaccaca aagagggaaa aaacaaaaaa   24660
        caaacaaaca aacaaaaaaa aacaaaacaa aacaaaaaaa aacccaaggt ccaaattgta   24720
        ggtcaggtta gagtttattt atggaaagtt atattctacc tccatggggt ctacaaggct   24780
        ggcgcccatc agaaagaaca aacaacaggc tgatctggga ggggtggtac tctatggcag   24840
  20    ggagcacgtg tgcttggggt acagccagac acggggcttg tattaatcac agggcttgta   24900
        ttaataggct gagagtcaag cagacagaga gacagaagga aacacacaca cacacacaca   24960
        cacacacaca cacacacaca catgcacaca ccactcactt ctcactcgaa gagcccctac   25020
        ttacattcta agaacaaacc attcctcctc ataaaggaga caaagttgca gaaacccaaa   25080
        agagccacag ggtccccact ctctttgaaa tgacttggac ttgttgcagg gaagacagag   25140
  25    gggtctgcag aggcttcctg ggtgacccag agccacagac actgaaatct ggtgctgaga   25200
        cctgtataaa ccctcttcca caggttccct gaaaggagcc cacattcccc aaccctgtct   25260
        cctgaccact gaggatgaga gcacttgggc cttccccatt cttggagtgc accctggttt   25320
        ccccatctga gggcacatga ggtctcaggt cttgggaaag ttccacaagt attgaaagtg   25380
        ttcttgtttt gtttgtgatt taatttaggt gtatgagtgc ttttgcttga atatatgcct   25440
  30    gtgtagcatt tacaagcctg gtgcctgagg agatcagaag atggcatcag ataccctgga   25500
        actggacttg cagacagtta tgagccactg tgtgggtgct aggaacagaa cctggatcct   25560
        ccggaagagc agacagccag cgctcttagc cactaagcca tcactgaggt tctttctgtg   25620
        gctaaagaga caggagacaa aggagagttt cttttagtca ataggaccat gaatgttcct   25680
        cgtaacgtga gactagggca gggtgatccc ccagtgacac cgatggccct gtgtagttat   25740
  35    tagcagctct agtcttattc cttaataagt cccagtttgg ggcaggagat atgtattccc   25800
        tgctttgaag tggctgaggt ccagttatct acttccaagt acttgtttct ctttctggag   25860
        ttggggaagc tccctgcctg cctgtaaatg tgtccattct tcaaccttag acaagatcac   25920
        tttccctgag cagtcaggcc agtccaaagc ccttcaattt agctttcata aggaacaccc   25980
        cttttgttgg gtggaggtag cacttgcctt gaatcccagc attaagaagg cagagacagt   26040
  40    cggatctctg tgagttcaca gccagcctgg tctacggagt gagttccaag acagccaggc   26100
        ctacacagag aaaccctgtc tcgaaaaaaa caaaaacaaa agaaataaag aaaagaaaa   26160
        caaaaacgaa caaacagaaa aacaagccag agtgtttgtc cccgtatttt attaatcata   26220
        tttttgtccc tttgccattt tagactaaaa gactcgggaa agcaggtctc tctctgtttc   26280
        tcatccggac acacccagaa ccagatgtat ggaagatggc taatgtgctg cagttgcaca   26340
  45    tctggggctg ggtggattgg ttagatggca tgggctgggt gtggttacga tgactgcagg   26400
        agcaaggagt atgtggtgca tagcaaacga ggaagtttgc acagaacaac actgtgtgta   26460
        ctgatgtgca ggtatgggca catgcaagca gaagccaagg acagcctta gggtagtgtt   26520
        tccacagacc cctcccccct tttaacatgg gcatctctca ttggcctgga gcttgccaac   26580
        tgggctgggc tggctagctt gtaggtccca gggatctgca tatctctgcc tccctagtgc   26640
  50    tgggattaca gtcatatatg agcacacctg gctttttat gtgggttctg ggctttgaac   26700
        ccagatctga gtgcttgcaa ggcaatcggt tgaatgactg cttcatctcc ccagaccctg   26760
        ggattctact ttctattaaa gtatttctat taaatcaatg agcccctgcc cctgcactca   26820
        gcagttctta ggcctgctga gagtcaagtg gggagtgaga gcaagcctcg agacccatc   26880
        agcgaagcag aggacaaaga aatgaaaact tgggattcga ggctcgggat atggagatac   26940
  55    agaaagggtc agggaaggaa atgaaccaga tgaatagagg caggaagggt agggccctgc   27000
```

```
        atacatggaa cctggtgtac atgttatctg catggggttt gcattgcaat ggctcttcag    27060
        caggttcacc acactgggaa acagaagcca aaaagaagag taggtggtgt tggagtcaga    27120
        tactgtcagt catgcctgaa gaaatggaag caattaacga tgcgccgcaa ttaggatatt    27180
        agctccctga agaaaggcaa gaagctgggc tgtgggcact gaagggagct ttgaatgatg    27240
     5  tcacattctc tgtatgccta gcagggcagt attggagact gagacttgac ttgtgtgtcc    27300
        atatgattcc tccttttcct acagtcatct ggggctcctg agcttcgtcc ttgtccaaga    27360
        acctggagct ggcagtgggc agctgcagtg atagatgtct gcaagaaaga tctgaaaaga    27420
        gggaggaaga tgaaggaccc agaggaccac cgacctctgc tgcctgacaa agctgcagga    27480
        ccagtctctc ctacagatgg gagacagagg cgagagatga atggtcaggg gaggagtcag    27540
    10  agaaaggaga gggtgaggca gagaccaaag gagggaaaca cttgtgctct acagctactg    27600
        actgagtacc agctgcgtgg cagacagcca atgccaaggc tcggctgatc atggcacctc    27660
        gtgggactcc tagcccagtg ctggcagagg ggagtgctga atggtgcatg gtttggatat    27720
        gatctgaatg tggtccagcc ctagtttcct tccagttgct gggataaagc accctgacca    27780
        aagctacttt tttgtttgtt tgttttggtt tggttttgtt tggtttttcg aggcagggtt    27840
    15  tctctgtatc accctagctg tcctggaact cactctgtag accaggctgg cctcgaactc    27900
        agaaatcccc ctgcctctgc ctcctaagtg ctggaattaa aggcctgcgc caccactgcc    27960
        ggcccaaagc tactttaaga gagagagagg aatgtataag tattataatt ccaggttata    28020
        gttcattgct gtagaattgg agtcttcata ttccaggtaa tctcccacag acatgccaca    28080
        aaacaacctg ttctacgaaa tctctcatgg actccttcc ccagtaattc taaactgtgt    28140
    20  caaatctaca agaaatagtg acagtcacag tctctaacgt tttgggcatg agtctgaagt    28200
        ctcattgcta agtactggga agatgaaaac tttacctagt gtcagcattt ggagcagagc    28260
        ctttgggatt tgagatggtc ttttgcagag ctcctaatgg ctacatggag agaggggcc    28320
        tgggagagac ccatacacct tttgctgcct tatgtcacct gacctgctcc ttgggaagct    28380
        ctagcaagaa ggccttccct ggatcaccca ccaccttgca cctccagaac tcagagccaa.   28440
    25  attaaacttt cttgttactg tcgtcaaagc acagtcggtc tgggttgtat cactgtcaat.   28500
        gggaaacaga cttgcctgga tggataactt gtacattgca taatgtctag aaatgaaaag    28560
        tcctatagag aaaaagaaaa ttagctggca cacagataga ggccctggag gaggctggct    28620
        ttgtcctccc cgaggaggtg gcgagtaagg tgtaaatgtt catggatgta aatgggccca    28680
        tatatgaggg tctggggtaa caagaaggcc tgtgaatata aagcactgaa ggtatgtcta    28740
    30  gtctggagaa ggtcactaca gagagttctc caactcagtg cccatacaca cacacacaca    28800
        cacacacaca cacacacaca cacacacaca ccacaaagaa aaaaggaag aaaaatctga    28860
        gagcaagtac agtacttaaa attgtgtgat tgtgtgtgtg actctgatgt cacatgctca    28920
        tcttgcccta tgagttgaaa accaaatggc ccctgagagg cataacaacc acactgttgg    28980
        ctgtgtgctc acgttttttct taaagcgtct gtctggtttg ctgctagcat caggcagact    29040
    35  tgcagcagac tacatatgct cagccctgaa gtccttctag ggtgcatgtc tcttcagaat    29100
        ttcagaaagt catctgtggc tccaggaccg cctgcactct ccctctgccg cgaggctgca    29160
        gactctaggc tggggtggaa gcaacgctta cctctgggac aagtataaca tgttggcttt    29220
        tctttccctc tgtggctcca acctggacat aaaatagatg caagctgtgt aataaatatt    29280
        tcctcccgtc cacttagttc tcaacaataa ctactctgag agcacttatt aataggtggc    29340
    40  ttagacataa gctttggctc attcccccac tagctcttac ttctttaact ctttcaaacc    29400
        attctgtgtc ttccacatgg ttagttacct ctccttccat cctggttcgc ttcttccttc    29460
        gagtcgccct cagtgtctct aggtgatgct tgtaagatat tctttctaca aagctgagag    29520
        tggtggcact ctgggagttc aaagccagcc tgatctacac agcaagctcc aggatatcca    29580
        gggcaatgtt gggaaaacct ttctcaaaca aaaagagggg ttcagttgtc aggaggagac    29640
    45  ccatgggtta agaagtctag acgagccatg gtgatgcata cctttcatcc aagcacttag    29700
        gaggcaaaga aaggtgaaac tctttgactt tgaggccagc taggttacat agtgatacccc   29760
        tgcttagtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtaatt taaaagtcta    29820
        aaaatgcatt ctttttaaaaa tatgtataag tatttgcctg cacatatgta tgtatgtatg    29880
        tataccatgt gtgtgtctgg tgctgaagga ctaggcatag actccctaga actagagtca    29940
    50  tagacagttg tgacactccc caaccccccca ccatgtgggt gcttgaagct aaactcctgt    30000
        cctttgtaaa gcagcaggtg tctatgaacc ctgaaccatc tctccagtct ccagatgtgc    30060
        attctcaaag aggagtcctt catatttccc taaactgaac atccttatca gtgagcatcc    30120
        tcgagtcacc aaagctactg caaaccctct tagggaacat tcactattca cttctacttg    30180
        gctcatgaaa cttaagtaca cacacacaaa cacacacaca cacacagagt catgcactca    30240
    55  caaaagcatg catgtacacc attcttatta gactatgctt tgctaaaaga ctttcctaga    30300
```

```
       tactttaaaa catcacttct gccttttggt gggcaggttc caagattggt actggcgtac   30360
       tggaaactga acaaggtaga gatctagaaa tcacagcagg tcagaagggc cagcctgtac   30420
       aagagagagt tccacacctt ccaggaacac tgagcagggg gctgggacct tgcctctcag   30480
       cccaagaaac tagtgcgttt cctgtatgca tgcctctcag agattccata agatctgcct   30540
   5   tctgccataa gatctcctgc atccagacaa gcctagggga agttgagagg ctgcctgagt   30600
       ctctcccaca ggccccttct tgcctggcag tattttttta tctggaggag aggaatcagg   30660
       gtgggaatga tcaaatacaa ttatcaagga aaaagtaaaa aacatatata tatatatatt   30720
       aactgatcta gggagctggc tcagcagtta agagttctgg ctgcccttgc ttcagatctt   30780
       gctttgattc ccagcaccca catgatggct ttcaactgta tctctgcttc caggggatcc   30840
  10   aacagcctct tctgacctcc atagacaaga cctagtcctc tgcaagagca ccaaatgctc   30900
       ttatctgttg atccatctct ctagcctcat gccagatcat ttaaaactac tggacactgt   30960
       cccattttac gaagatgtca ctgcccagtc atttgccatg agtggatatt tcgattcttt   31020
       ctatgttctc acccttgcaa tttataagaa agatatctgc atttgtctcc tgagagaaca   31080
       aagggtggag ggctactgag atggctctag gggtaaaggt gcttgccaca aaatctgaca   31140
  15   acttaagttt ggtcttggaa tccacatggt ggagagagag aagagattcc cgtaagttgt   31200
       cctcaaactt cccacacatg tgctgtggct tatgtgtaac cccaataagt aaagatagtt   31260
       ttaaacacta cataaggtag ggtttcttca tgaccccaag gaatgatgcc cctgatagag   31320
       cttatgctga aaccccatct ccattgtgcc atctggaaag agacaattgc atcccggaaa   31380
       cagaatcttc atgaatggat taatgagcta ttaagaaagt ggcttggtta ttgcacatgc   31440
  20   tggcggcgta atgacctcca ccatgatgtt atccagcatg aaggtcctca ccagaagtca   31500
       tacaaatctt cttaggcttc cagagtcgtg agcaaaaaaa gcacacctct aaataaatta   31560
       actagcctca ggtagttaac caccgaaaat gaaccaaggc agttctaata caaaaccact   31620
       tcccttccct gttcaaacca cagtgcccta ttatctaaaa gataaacttc aagccaagct   31680
       tttaggttgc cagtatttat gtaacaacaa ggcccgttga cacacatctg taactcctag   31740
  25   tactgggcct caggggcaga gacaggtgga gccctggagt ttgaattcca ggttctgtga   31800
       gaaactctgt ctgaaaagac aatatggtga gtgacccggg aggatatctg atattgactt   31860
       ctggccaaca cacagccatc tctgcacatc tgtagttgca agccttttgc actaagtttg   31920
       gccagagtca gagtttgcaa gtgtttgtgg actgaatgca cgtgttgctg gtgatctaca   31980
       aagtcaccct ccttctcaag ctagcagcac tggcttcggc cagctgctca ttcaagcctc   32040
  30   tttgcagagt catcacgggg atgggggagc agggcccctc cctagaacac caagcctgtg   32100
       gttgtttatt caggacatta ttgagggcca agatgacaga taactctatc acttggccaa   32160
       cagtcgggtg ttgcggtgtt aggttatttc tgtgtctgca gaaaacagtg caacctggac   32220
       aaaagaaata aatgatatca tttttcattc aggcaactag attccgtggt acaaaaggct   32280
       ccctggggaa cgaggccggg acagcgcggc tcctgagtcg ctatttccgt ctgtcaactt   32340
  35   ctctaatctc ttgatttcct ccctctgtct gtttccttcc tcttgctggg gcccagtgga   32400
       gtctgtgtac tcacagggag gagggtggca aagccctggt cctctacggg ctggggaag    32460
       ggggaagct gtcggcccag tgactttttc cccttt ctct ttttcttaga aaccagtctc   32520
       aatttaagat aatgagtctc ctcattcacg tgtgctcact attcataggg acttatccac   32580
       ccccgccctg tcaatctggc taagtaagac aagtcaaatt taaaagggaa cgttttctta   32640
  40   aaaatgtggc tggaccgtgt gccggcacga aaccagggat ggcggtctaa gttacatgct   32700
       ctctgccagc cccggtgcct tttcctttcg gaaaggagac ccggaggtaa aacgaagttg   32760
       ccaacttttg atgatggtgt gcgccgggtg actctttaaa atgtcatcca tacctgggat   32820
       agggaaggct cttcagggag tcatctagcc ctcccttcag gaaaagattc cacttccggt   32880
       ttagttagct tccacctggt cccttatccg ctgtctctgc ccactagtcc tcatccatcc   32940
  45   ggtttccgcc ctcatccacc ttgccctttt agttcctaga aagcagcacc gtagtcttgg   33000
       caggtgggcc attggtcact ccgctaccac tgttaccatg gccaccaagg tgtcatttaa   33060
       atatgagctc actgagtcct gcgggatggc ttggttggta atatgcttgc tgcaaaatcg   33120
       tgagaactgg agttcaattc ccagcacatg gatgtatttc cagcacctgg aaggcaggga   33180
       gcagagatct taaagctcct ggccagacag cccagcctaa ttagtaatca gtgagagacc   33240
  50   ctgtctcaag aaacaagatg gaacatcaaa ggtcaacctc ttgtctccac acacacaaat   33300
       acacacatgc acatacatcc acacacaggc aaacacatgc acacacctga acaccctcca   33360
       caaatacata cataaaaaaa taaatacata cacacataca tacatacacc aacattccct   33420
       ctccttagtc tcctggctac gctcttgtca cccccactaa ggcttcaact tcttctattt   33480
       cttcatcttg actcctctgt actttgcatg ccttttccag caaaggcttt tctttaaatc   33540
  55   tccgtcattc ataaactccc tctaaatttc ttccctgcc ctttctttc tctctaggga   33600
```

```
     gataaagaca cacactacaa agtcaccgtg ggaccagttt attcacccac ccacccctgc    33660
     ttctgttcat ccggccagct aagtagtcca acctctctgg tgctgtaccc tggaccctgg    33720
     cttcaccaca gctcctccat gctacccagc cctgcaaacc ttcagcctag cctctggttc    33780
     tccaaccagc acaggcccag tctggcttct atgtcctaga aatctccttc attctctcca    33840
  5  tttccctcct gaatctacca ccttctttct cccttctcct gacctctaat gtcttggtca    33900
     aacgattaca aggaagccaa tgaaattagc agtttggggt acctcagagt cagcagggga    33960
     gctgggatga attcacattt ccaggccttt gctttgctcc ccggattctg acaggcagtt    34020
     ccgaagctga gtccaggaag ctgaatttaa aatcacactc cagctgggtt ctgaggcagc    34080
     cctaccacat cagctggccc tgactgagct gtgtctgggt ggcagtggtg ctggtggtgc    34140
 10  tggtggtgct ggtggtggtg gtggtggtgg tggtggtggt ggtggtggtg tgtgtgtgtg    34200
     ttttctgctt ttacaaaact tttctaattc ttatacaaag gacaaatctg cctcatatag    34260
     gcagaaagat gacttatgcc tatataagat ataaagatga ctttatgcca cttattagca    34320
     atagttactg tcaaaagtaa ttctatttat acacccttat acatggtatt gcttttgttg    34380
     gagactctaa aatccagatt atgtatttaa aaaaaaattc cccagtcctt aaaaggtgaa    34440
 15  gaatggaccc agatagaagg tcacggcaca agtatggagt cggagtgtgg agtcctgcca    34500
     atggtctgga cagaagcatc cagagagggt ccaagacaaa tgcctcgcct cctaaggaac    34560
     actggcagcc ctgatgaggt accagagatt gctaagtgga ggaatacagg atcagaccca    34620
     tggagggggct taaagcgtga ctgtagcagc cctccgctga gggggctccag gtgggcgccc    34680
     aaggtgctgc agtgggagcc acatgagagg tgatgtcttg gagtcacctc gggtaccatt    34740
 20  gtttagggag gtggggattt gtggtgtgga gacaggcagc ctcaaggatg cttttcaaca    34800
     atggttgatg agttggaact aaaacagggg ccatcacact ggctcccata gctctgggct    34860
     tgccagcttc cacatctgcc ccccacccc tgtctggcac cagctcaagc tctgtgattc    34920
     tacacatcca aaagaggaag agtagcctac tgggcatgcc acctcttctg gaccatcagg    34980
     tgagagtgtg gcaagcccta ggctcctgtc caggatgcag ggctgccaga taggatgctc    35040
 25  agctatctcc tgagctggaa ctattttagg aataaggatt atgcccgccc ggggttggcc    35100
     agcacccccag cagcctgtgc ttgcgtaaaa gcaagtgctg ttgatttatc taaaaacaga    35160
     gccgtggacc cacccacagg acaagtatgt atgcatctgt ttcatgtatc tgaaaagcga    35220
     cacaaccatt tttcacatca tggcatcttc ctaaccccca ttctttttg ttttgttttt    35280
     ttgagacagg gtttctctgt gtagtcctgg ctgtcctgga actcactttg tagaccaggc    35340
 30  tggcctcgaa ctcagaaatc ctgggattaa aggtgtgtgc caccacgccc ggccctaacc    35400
     cccattctta atggtgatcc agtggttgaa atttcgggcc acacacatgt ccattaggga    35460
     ttagctgctg tcttctgagc tacctggtac aatctttatc ccctggggcc tgggctcctg    35520
     atccctgact cgggcccgat caagtccagt tcctgggccc gatcaagtcc agttcctggg    35580
     cccgaacaag tccagtccct agctcgatta gctcatcctg gctccctggc ctgttcttac    35640
 35  ttacactctt ccccttgctc tggacttgtt gctttcttta ctcaagttgt ctgccacagt    35700
     ccctaagcca cctctgtaag acaactaaga taatacttcc ctcaagcacg gaaagtcctg    35760
     agtcaccaca ccctctggag gtgtgtggac acatgttcat gcgtgtggtt gcgcttacgt    35820
     acgtgtgc                                                             35828
```

```
     tagaggagaa gtctttgggg agggtttgct ctgagcacac cccttttccct ccctccgggg      60
     ctgagggaaa catgggacca gccctgcccc agcctgtcct cattggctgg catgaagcag     120
     agaggggctt taaaaaggcg accgtgtctc ggctggagac cagagcctgt gctactggaa     180
     ggtggcgtgc cctcctctgg ctggtaccat gcagctccca ctggccctgt gtctcgtctg     240
 50  cctgctggta cacacagcct tccgtgtagt ggagggccag gggtggcagg cgttcaagaa     300
     tgatgccacg gaaatcatcc ccgagctcgg agagtacccc gagcctccac cggagctgga     360
     gaacaacaag accatgaacc gggcggagaa cggagggcgg cctccccacc accccctttga     420
     gaccaaaggt atggggtgga ggagagaatt cttagtaaaa gatcctgggg aggttttaga     480
     aacttctctt tgggaggctt ggaagactgg ggtagaccca gtgaagattg ctggcctctg     540
 55  ccagcactgg tcgaggaaca gtcttgcctg gaggtggggg aagaatggct cgctggtgca     600
```

```
     gccttcaaat tcaggtgcag aggcatgagg caacagacgc tggtgagagc ccagggcagg    660
     gaggacgctg gggtggtgag ggtatggcat cagggcatca gaacaggctc aggggctcag    720
     aaaagaaaag gtttcaaaga atctcctcct gggaatatag gagccacgtc cagctgctgg    780
     taccactggg aaggggaacaa ggtaagggag cctcccatcc acagaacagc acctgtgggg    840
5    caccggacac tctatgctgg tggtggctgt ccccaccaca cagacccaca tcatggaatc    900
     cccaggaggt gaaccccccag ctcgaagggg aagaaacagg ttccaggcac tcagtaactt    960
     ggtagtgaga agagctgagg tgtgaacctg gtttgatcca actgcaagat agccctggtg   1020
     tgtggggggg tgtgggggac agatctccac aaagcagtgg ggaggaaggc cagagaggca   1080
     cccctgcagt gtgcattgcc catggcctgc ccagggagct ggcacttgaa ggaatgggag   1140
10   ttttcggcac agttttagcc cctgacatgg gtgcagctga gtccaggccc tggaggggag   1200
     agcagcatcc tctgtgcagg agtagggaca tctgtcctca gcagccaccc cagtcccaac   1260
     cttgcctcat tccaggggag ggagaaggaa gaggaaccct gggttcctgg tcaggcctgc   1320
     acagagaagc ccaggtgaca gtgtgcatct ggctctataa ttggcaggaa tcctgaggcc   1380
     atggggcgt ctgaaatgac acttcagact aagagcttcc ctgtcctctg gccattatcc   1440
15   aggtggcaga gaagtccact gcccaggctc ctggacccca gccctccccg cctcacaacc   1500
     tgttgggact atggggtgct aaaaagggca actgcatggg aggccagcca ggaccctccg   1560
     tcttcaaaat ggaggacaag ggcgcctccc cccacagctc cccttctagg caaggtcagc   1620
     tgggctccag cgactgcctg aagggctgta aggaacccaa acacaaaatg tccaccttgc   1680
     tggactccca cgagaggcca cagcccctga ggaagccaca tgctcaaaac aaagtcatga   1740
20   tctgcagagg aagtgcctgg cctaggggcg ctattctcga aaagccgcaa aatgccccct   1800
     tccctgggca aatgcccccc tgaccacaca cacattccag ccctgcagag gtgaggatgc   1860
     aaaccagccc acagaccaga aagcagcccc agacgatggc agtggccaca tctcccctgc   1920
     tgtgcttgct cttcagagtg ggggtggggg gtggccttct ctgtcccctc tctggtttgg   1980
     tcttaagact attttttcatt ctttcttgtc acattggaac tatccccatg aaacctttgg   2040
25   gggtggactg gtactcacac gacgaccagc tatttaaaaa gctcccaccc atctaagtcc   2100
     accataggag acatggtcaa ggtgtgtgca ggggatcagg ccaggcctcg gagcccaatc   2160
     tctgcctgcc cagggagtat caccatgagg cgcccattca gataacacag aacaagaaat   2220
     gtgcccagca gagagccagg tcaatgtttg tggcagctga acctgtaggt tttgggtcag   2280
     agctcagggc ccctatggta ggaaagtaac gacagtaaaa agcagccctc agctccatcc   2340
30   cccagcccag cctcccatgg atgctcgaac gcagagcctc cactcttgcc ggagccaaaa   2400
     ggtgctggga ccccagggaa gtggagtccg gagatgcagc ccagccttttt gggcaagttc   2460
     ttttctctgg ctgggcctca gtattctcat tgataatgag ggggttggac acactgcctt   2520
     tgattccttt caagtctaat gaattcctgt cctgatcacc tccccttcag tccctcgcct   2580
     ccacagcagc tgccctgatt tattaccttc aattaacctc tactcctttc tccatcccct   2640
35   gtccaccct cccaagtggc tggaaaagga atttgggaga agccagagcc aggcagaagg   2700
     tgtgctgagt acttaccctg cccaggccag ggaccctgcg gcacaagtgt ggcttaaatc   2760
     ataagaagac cccagaagag aaatgataat aataatacat aacagccgac gctttcagct   2820
     atatgtgcca aatggtattt tctgcattgc gtgtgtaatg gattaactcg caatgcttgg   2880
     ggcggcccat tttgcagaca ggaagaagag agaggttaag gaacttgccc aagatgacac   2940
40   ctgcagtgag cgatggagcc ctggtgtttg aaccccagca gtcatttggc tccgagggga   3000
     cagggtgcgc aggagagctt tccaccagct ctagagcatc tgggaccttc ctgcaataga   3060
     tgttcagggg caaaagcctc tggagacagg cttggcaaaa gcagggctgg ggtggagaga   3120
     gacgggccgg tccagggcag gggtggccag gcgggcggcc accctcacgc gcgcctctct   3180
     ccacagacgt gtccgagtac agctgccgcg agctgcactt cacccgctac gtgaccgatg   3240
45   ggccgtgccg cagcgccaag ccggtcaccg agctggtgtg ctccggccag tgcggccgg   3300
     cgcgcctgct gcccaacgcc atcggccgcg gcaagtggtg gcgacctagt gggcccgact   3360
     tccgctgcat ccccgaccgc taccgcgcgc agcgcgtgca gctgctgtgt cccggtggtg   3420
     aggcgccgcg cgcgcgcaag gtgcgcctgg tggcctcgtg caagtgcaag cgcctcaccc   3480
     gcttccacaa ccagtcggag ctcaaggact tcgggaccga ggccgctcgg ccgcagaagg   3540
50   gccggaagcc gcggcccgc gcccggagcg ccaaagccaa ccaggccgag ctggagaacg   3600
     cctactagag cccgccgcg cccctcccca ccggcgggcg ccccggccct gaacccgcgc   3660
     cccacatttc tgtcctctgc gcgtggtttg attgtttata tttcattgta aatgcctgca   3720
     acccagggca gggggctgag accttccagg ccctgaggaa tcccgggcgc cggcaaggcc   3780
     cccctcagcc cgccagctga ggggtcccac ggggcagggg agggaattga gagtcacaga   3840
55   cactgagcca cgcagccccg cctctggggc cgcctacctt tgctggtccc acttcagagg   3900
```

```
      aggcagaaat ggaagcattt tcaccgccct ggggttttaa gggagcggtg tgggagtggg   3960
      aaagtccagg gactggttaa gaaagttgga taagattccc ccttgcacct cgctgcccat   4020
      cagaaagcct gaggcgtgcc cagagcacaa gactggggggc aactgtagat gtggtttcta   4080
  5   gtcctggctc tgccactaac ttgctgtgta accttgaact acacaattct ccttcgggac   4140
      ctcaatttcc actttgtaaa atgagggtgg aggtgggaat aggatctcga ggagactatt   4200
      ggcatatgat tccaaggact ccagtgcctt ttgaatgggc agaggtgaga gagagagaga   4260
      gaaagagaga gaatgaatgc agttgcattg attcagtgcc aaggtcactt ccagaattca   4320
      gagttgtgat gctctcttct gacagccaaa gatgaaaaac aaacagaaaa aaaaaagtaa   4380
      agagtctatt tatggctgac atatttacgg ctgacaaact cctggaagaa gctatgctgc   4440
 10   ttcccagcct ggcttccccg gatgtttggc tacctccacc cctccatctc aaagaaataa   4500
      catcatccat tggggtagaa aaggagaggg tccgagggtg gtgggaggga tagaaatcac   4560
      atccgcccca acttcccaaa gagcagcatc cctcccccga cccatagcca tgttttaaag   4620
      tcaccttccg aagagaagtg aaaggttcaa ggacactggc cttgcaggcc cgagggagca   4680
      gccatcacaa actcacagac cagcacatcc cttttgagac accgccttct gcccaccact   4740
 15   cacggacaca tttctgccta gaaaacagct tcttactgct cttacatgtg atggcatatc   4800
      ttacactaaa agaatattat tggggaaaa actacaagtg ctgtacatat gctgagaaac   4860
      tgcagagcat aatagctgcc acccaaaaat cttttgaaa atcatttcca gacaacctct   4920
      tactttctgt gtagttttta attgttaaaa aaaaaagtt ttaaacagaa gcacatgaca   4980
      tatgaaagcc tgcaggactg gtcgtttttt tggcaattct tccacgtggg acttgtccac   5040
 20   aagaatgaaa gtagtggttt ttaaagagtt aagttacata tttattttct cacttaagtt   5100
      atttatgcaa aagttttct tgtagagaat gacaatgtta atattgcttt atgaattaac   5160
      agtctgttct tccagagtcc agagacattg ttaataaaga caatgaatca tgaccgaaag   5220
      gatgtggtct cattttgtca accacacatg acgtcatttc tgtcaaagtt gacacccttc   5280
      tcttggtcac tagagctcca accttggaca cacctttgac tgctctctgg tggcccttgt   5340
 25   ggcaattatg tcttccttg aaaagtcatg tttatccctt cctttccaaa cccagaccgc   5400
      atttcttcac ccagggcatg gtaataacct cagccttgta tccttttagc agcctcccct   5460
      ccatgctggc ttccaaaatg ctgttctcat tgtatcactc ccctgctcaa aagccttcca   5520
      tagctccccc ttgcccagga tcaagtgcag tttccctatc tgacatggga ggccttctct   5580
      gcttgactcc cacctcccac tccaccaagc ttcctactga ctccaaatgg tcatgcagat   5640
 30   ccctgcttcc ttagtttgcc atccacactt agcacccca ataactaatc ctctttcttt   5700
      aggattcaca ttacttgtca tctcttcccc taaccttcca gagatgttcc aatctcccat   5760
      gatccctctc tcctctgagg ttccagcccc ttttgtctac accactactt tggttcctaa   5820
      ttctgttttc catttgacag tcattcatgg aggaccagcc tggccaagtc ctgcttagta   5880
      ctggcataga caacacaaag ccaagtacaa ttcaggacca gctcacagga aacttcatct   5940
 35   tcttcgaagt gtggatttga tgcctcctgg gtagaaatgt aggatcttca aaagtgggcc   6000
      agcctcctgc acttctctca aagtctcgcc tccccaaggt gtcttaatag tgctggatgc   6060
      tagctgagtt agcatcttca gatgaagagt aaccctaaag ttactcttca gttgccctaa   6120
      ggtgggatgg tcaactggaa agctttaaat taagtccagc ctaccttggg ggaacccacc   6180
      cccacaaaga aagctgaggt ccctcctgat gacttgtcag tttaactacc aataacccac   6240
 40   ttgaattaat catcatcatc aagtctttga taggtgtgag tgggtatcag tggccggtcc   6300
      cttcctgggg ctccagcccc cgaggaggcc tcagtgagcc cctgcagaaa atccatgcat   6360
      catgagtgtc tcagggccca gaatatgaga gcaggtagga aacagagaca tcttccatcc   6420
      ctgagaggca gtgcggtcca gtgggtgggg acacgggctc tgggtcaggt ttgtgttgtt   6480
      tgtttgtttg ttttgagaca gagtctcgct ctattgccca ggctggagtg cagtgtcaca   6540
 45   atctcggctt actgcaactt ctgccttccc ggattcaagt gattctcctg cctcagcctc   6600
      cagagtagct gggattacag gtgcgtgcca ccacgcctgg ctaatttttg tattttttgat   6660
      agagacgggg tttcaccatg ttggccaggc tagtctcgaa ctcttgacct caagtgatct   6720
      gcctgcctcg gcctcccaaa gtgctgggat tacaggcgtg agccaccaca cccagcccca   6780
      ggttggtgtt tgaatctgag gagactgaag caccaagggg ttaaatgttt tgcccacagc   6840
 50   catacttggg ctcagttcct tgccctaccc ctcacttgag ctgcttagaa cctggtgggc   6900
      acatgggcaa taaccaggtc acactgtttt gtaccaagtg ttatgggaat ccaagatagg   6960
      agtaatttgc tctgtggagg ggatgaggga tagtggttag ggaaagcttc acaaagtggg   7020
      tgttgcttag agattttcca ggtggagaag ggggcttcta ggcagaaggc atagcccaag   7080
      caaagactgc aagtgcatgg ctgctcatgg gtagaagaga atccaccatt cctcaacatg   7140
 55   taccgagtcc ttgccatgtg caaggcaaca tgggggtacc aggaattcca agcaatgtcc   7200
```

```
aaacctaggg tctgctttct gggacctgaa gatacaggat ggatcagccc aggctgcaat    7260
cccattacca cgaggggaa aaaaacctga aggctaaatt gtaggtcggg ttagaggtta    7320
tttatggaaa gttatattct acctacatgg ggtctataag cctggcgcca atcagaaaag    7380
gaacaaacaa cagacctagc tgggaggggc agcattttgt tgtaggggc ggggcacatg    7440
ttctggggt acagccagac tcagggcttg tattaatagt ctgagagtaa gacagacaga    7500
gggatagaag gaaataggtc cctttctctc tctctctctc tctctctctc actctctctc    7560
tctctcacac acacacacag acacacacac acgctctgta ggggtctact tatgctccaa    7620
gtacaaatca ggccacattt acacaaggag gtaaaggaaa agaacgttgg aggagccaca    7680
ggaccccaaa attccctgtt ttccttgaat caggcaggac ttacgcagct gggagggtgg    7740
agagcctgca gaagccacct gcgagtaagc caagttcaga gtcacagaca ccaaaagctg    7800
gtgccatgtc ccacacccgc ccacctccca cctgctcctt gacacagccc tgtgctccac    7860
aacccggctc ccagatcatt gattatagct ctggggcctg caccgtcctt cctgccacat    7920
ccccaccca ttcttggaac ctgccctctg tcttctccct tgtccaaggg caggcaaggg    7980
ctcagctatt gggcagcttt gaccaacagc tgaggctcct tttgtggctg gagatgcagg    8040
aggcaggga atattcctct tagtcaatgc gaccatgtgc ctggtttgcc cagggtggtc    8100
tcgtttacac ctgtaggcca agcgtaatta ttaacagctc ccacttctac tctaaaaat    8160
gacccaatct gggcagtaaa ttatatggtg cccatgctat taagagctgc aacttgctgg    8220
gcgtggtggc tcacacctgt aatcccagta ctttgggacg tcaaggcggg tggatcacct    8280
gaggtcacga gttagagact ggcctggcca gcatggcaaa accccatctt tactaaaaat    8340
acaaaaatta gcaaggcatg gtggcatgca cctgtaatcc caggtactcg ggaggctgag    8400
acaggagaat ggcttgaacc caggaggcag aggttgcagt gagccaagat tgtgccactg    8460
ccctccagcc ctggcaacag agcaagactt catctcaaaa gaaaaggat actgtcaatc    8520
actgcaggaa gaacccaggt aatgaatgag gagaagagag gggctgagtc accatagtgg    8580
cagcaccgac tcctgcagga aaggcgagac actgggtcat gggtactaa gggtgccctg    8640
aatgacgttc tgctttagag accgaacctg agccctgaaa gtgcatgcct gttcatgggt    8700
gagagactaa attcatcatt ccttggcagg tactgaatcc tttcttacgg ctgccctcca    8760
atgcccaatt tccctacaat tgtctggggt gcctaagctt ctgcccacca agagggccag    8820
agctggcagc gagcagctgc aggtaggaga gataggtacc cataaggag gtgggaaaga    8880
gagatggaag gagaggggtg cagagcacac acctcccctg cctgacaact tcctgagggc    8940
tggtcatgcc agcagattta aggcggaggc aggggagatg gggcgggaga ggaagtgaaa    9000
aaggagaggg tggggatgga gaggaagaga gggtgatcat tcattcattc cattgctact    9060
gactggatgc cagctgtgag ccaggcacca ccctagctct gggcatgtgg ttgtaatctt    9120
ggagcctcat ggagctcaca gggagtgctg caaggagat ggataatgga cggataacaa    9180
ataaacattt agtacaatgt ccgggaatgg aaagttctcg aaagaaaaat aaagctggtg    9240
agcatataga cagccctgaa ggcggccagg ccaggcattt ctgaggaggt ggcatttgag    9300
c                                                                    9301

           <210> 19
           <211> 21
           <212> DNA
           <213> Artificial Sequence

           <220>
           <223> Primer for PCR


           <400> 19
           ccggagctgg agaacaacaa g                                          21


           <210> 20
           <211> 19
           <212> DNA
           <213> Artificial Sequence

           <220>
           <223> PRimer for PCR
```

<400> 20
gcactggccg gagcacacc   19

          <210> 21
          <211> 23
          <212> DNA
          <213> Artificial Sequence

          <220>
          <223> Primer for PCR

          <400> 21
aggccaaccg cgagaagatg acc   23

          <210> 22
          <211> 21
          <212> DNA
          <213> Artificial Sequence

          <220>
          <223> Primer for PCR

          <400> 22
gaagtccagg gcgacgtagc a   21

          <210> 23
          <211> 25
          <212> DNA
          <213> Artificial Sequence

          <220>
          <223> Primer for PCR

          <400> 23
aagcttggta ccatgcagct cccac   25

          <210> 24
          <211> 50
          <212> DNA
          <213> Artificial Sequence

          <220>
          <223> Primer for PCR

          <400> 24
aagcttctac ttgtcatcgt cgtccttgta gtcgtaggcg ttctccagct   50

          <210> 25
          <211> 19
          <212> DNA
          <213> Artificial Sequence

          <220>
          <223> Primer for PCR

<400> 25
gcactggccg gagcacacc   19

5   <210> 26
        <211> 39
        <212> DNA
        <213> Artificial Sequence

10   <220>
        <223> Primer for PCR

        <400> 26
gtcgtcggat ccatggggtg gcaggcgttc aagaatgat   -   39
15
        <210> 27
        <211> 57
        <212> DNA
        <213> Artificial Sequence
20
        <220>
        <223> Primer for PCR

        <400> 27
25 gtcgtcaagc ttctacttgt catcgtcctt gtagtcgtag gcgttctcca gctcggc   57

        <210> 28
        <211> 29
        <212> DNA
30   <213> Artificial Sequence

        <220>
        <223> Primer for PCR

35   <400> 28
gacttggatc ccaggggtgg caggcgttc   29

        <210> 29
        <211> 29
40   <212> DNA
        <213> Artificial Sequence

        <220>
        <223> Primer for PCR
45
        <400> 29
agcataagct tctagtaggc gttctccag   29

        <210> 30
50   <211> 29
        <212> DNA
        <213> Artificial Sequence

        <220>
55   <223> Primer for PCR

<400> 30
gacttggatc cgaagggaaa aagaaaggg   29

    <210> 31
    <211> 29
    <212> DNA
    <213> Artificial Sequence

    <220>
    <223> Primer for PCR

    <400> 31
agcataagct tttaatccaa atcgatgga   —   29

    <210> 32
    <211> 33
    <212> DNA
    <213> Artificial Sequence

    <220>
    <223> Primer for PCR

    <400> 32
actacgagct cggcccacc acccatcaac aag   33

    <210> 33
    <211> 34
    <212> DNA
    <213> Artificial Sequence

    <220>
    <223> Primer for PCR

    <400> 33
acttagaagc tttcagtcct cagcccctc ttcc   34

    <210> 34
    <211> 66
    <212> DNA
    <213> Artificial Sequence

    <220>
    <223> Primer for PCR

    <400> 34
aatctggatc cataacttcg tatagcatac attatacgaa gttatctgca ggattcgagg   60
gcccct   66

    <210> 35
    <211> 82
    <212> DNA
    <213> Artificial Sequence

    <220>

<223> Primer for PCR

<400> 35
aatctgaatt ccaccggtgt taattaaata acttcgtata atgtatgcta tacgaagtta   60
tagatctaga gtcagcttct ga   82

<210> 36
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 36
atttaggtga cactatagaa ctcgagcagc tgaagcttaa ccacatggtg gctcacaacc   60
at   62

<210> 37
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 37
aacgacggcc agtgaatccg taatcatggt catgctgcca ggtggaggag ggca   54

<210> 38
<211> 31   <212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 38
attaccaccg gtgacacccg cttcctgaca g   31

<210> 39
<211> 61
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 39
attacttaat taaacatggc gcgccatatg gccggcccct aattgcggcg catcgttaat   60
t   61

<210> 40
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 40

attacggccg gccgcaaagg aattcaagat ctga   34

<210> 41
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR

<400> 41

attacggcgc gcccctcaca ggccgcaccc agct   34